School of Architecture, Construction and Planning

Land Use Change in an Area Surrounding an Industrial Estate: A Case Study of Surabaya Industrial Estate Rungkut (SIER), Indonesia

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Abstract

This research aimed to investigate land use change in the area surrounding the Surabaya Industrial Estate Rungkut (SIER) in Surabaya, Indonesia. It was found that the industrial location has encouraged unplanned land use occupation, particularly the growth of informal sector activities. Analysis of government action sees the existence of the informal sector as a problem due to its non-taxpayer status, its illegal occupation of land and the poor environment and image it creates for the wider city. The government's response to such a situation is to bulldoze the activities and associated development.

The land use change that has occurred in the study area identified a precinct designated for residential uses that is currently occupied by commercial activity. This research identified the networks between the formal industrial activity in the industrial estate, and this commercial activity, both formal and informal. It also assessed the impact of the surrounding residential community on land use change. The study then analysed the planning approaches adopted that attempt to segregate land use between industrial and non-industrial uses and the attempts to limit the development of an informal, unplanned, unregulated land use.

The study found that the current zoning regulations adopted from developed countries face many implementation problems particularly in providing for the accommodation of a large number of rural migrants. The appropriateness of land use segregation via zoning regulations to minimize the negative impact of industrial activity and to optimise the benefit of industrial land use networks was evaluated. The study recommends the creation of a more flexible and updated planning approach to land use change in Indonesia.

Key words:
Land use, informal sector, illegal occupation, urban management, and land economics

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1.0 INTRODUCTION

1.1 BACKGROUND

In many less developed countries, including Indonesia, the approach to urban land use control is adopted from developed countries where land use is segregated through the process of zoning. According to McAuslan (1985), many less developed contries are over-ambitious in their attempts to adopt the planning culture of developed countries, including the introduction of zoning systems. He notes that the urban resources, administrative systems, political philosophy, and bureaucracies in less developed countries differ greatly to those in developed countries, and lack the capacity to deliver effective planning intervention in the development process. In many less developed countries, the urban phenomenon of illegal occupation of land has paralleled the industrialization process (McAuslan 1985).

Ideally, government is a major player in the process of introducing comprehensive land use control through a planning system, which provides policies and zoning regulation to optimize the benefit of industrialization and minimize the negative impact of industrial activity (Kivell 1993). However the role of the government in developed and less developed country is quite different, in its approach to development. According to McAuslan (1998), in less developed countries the government's role in urban land regulation as a way of allocating scarce public resources has to compete with a tradition of political patronage in the development process.

Furthermore the planning system may conflict with the dynamics of the informal sector, where priorities are directed to the fundamentals of human survival in an often competitive and hostile working environment (Kirkby 2001). According to Singh (Singh 1986), it is important for less developed governments to identify planning approaches that respect the local conditions relating to land use occupation. In addition the traditional or informal sectors may develop integrated linkages with the formal sector creating opportunities for land use integration between these sectors.

Since the 1950s, global trends have shown a rapidly accelerating rural-urban migration in many less developed countries because of the growth of manufacturing sector (Haan 1989). This condition has absorbed large numbers of job seekers into the manufacturing sector (Ramanujam 1998). However where job seekers are unable to secure employment in the formal sector, this has resulted in the growth of informal activity in the vicinity of industrial estates servicing the needs of both workers and their employers.

Industrial activity in urban areas is a prime determinant in shaping city size and growth opportunities (Kivell 1993; Balchin, Isaac & Chen 2000). In many less developed countries, the presence of industrial activity can also change the socio-economic status of an area by generating population growth and related employment opportunities (Haan 1989). Theories of urban change emphasize the influence of industry as the prime mover of urban growth (Kivell 1993).

The informal sector has been characterized by many terms, such as the 'hidden economy', 'working poor' (Haan 1989, p.3), 'unregulated sector' (Portes 1989, p.15), 'foot-loose activities' (Ramanujam 1998, p.51) and even 'greediness workers' (Portes 1989, p.11). Despite such disparaging descriptions, the informal sector can contribute up to 60% of the total input into the formal manufacturing sector (Jagannathan 1987) and is an important provider of employment (Ramanujam 1998).

Another specific characteristic of the informal sector is its heterogeneity. Ramanujam (1998) has noted that this sector is not uniform; it manifests itself in different ways, in different countries, different cities, or different parts of cities. He classified this sector in two important categories: those activities with no fixed business address (such as street sellers) and those who work from home (commonly known as home based enterprises). The sector may also have social and economic impacts that are in opposition. From a social point of view the community benefits by having access to an independent and affordable lifestyle for industrial workers. However from an economic stand point the informal sector creates a poor image for cities attempting to attract global capital allows non-taxpayers occupation of valuable city land and condones unregulated activity contrary to regulations and principles embodied in the planning system.

1.2 SIGNIFICANCE OF THE STUDY

Recently, the government of Surabaya and other cities in East Java province have forced some components of the informal sector to move from illegally occupied land (HDS 2002). In mid-2002, the local government bulldozed much of the informal sector in Surabaya, despite the fact that it had operated in a particular area for a long time. The government was concerned that the presence of this sector represented a loss of revenue and the erosion of market turnover for the formal sector (Dick 2002, p.317).

This problem is not unique to Indonesia. In many less developed countries, such as India, Peru and Mexico, the government sees the existence of informal sector as encouraging non payment of land taxes, illegal occupation of land and tarnishing the image of the city (Surabaya-Post 2002).

Indonesia is still in the process of transforming governance ideology from the 'New Order' to the ''Reformasi'' government. This change of political culture was hastened by the Asian economic crisis in late 1990s (Budiman 1999; Dick 2002). These events have had a major impact on the planning system in Indonesia particularly in relation to the regulation and control of the informal sector.

Planning systems adopted from developed countries may not be effective in different cultural contexts, requiring new systems to be developed that are more responsive to the needs of less developed countries. The research will identify the value of this informal sector and identify more appropriate ways of mitigating its impact on surrounding land uses.

1.3 RESEARCH OBJECTIVES

Statement of the Problem

The land use planning model adopted for less developed countries, including Indonesia, faces many implementation problems especially in accommodating the employment of a large number of urban migrants. The research will analyze the

informal, unregulated sector, to identify its impact on the economic, social and industrial life of the nation and assess the value of land use control in regulating this form of activity.

Objectives

1. To investigate land use change in areas surrounding the SIER industrial estate in Surabaya
2. To identify the character of the networks between the formal and informal sectors
3. To examine the appropriateness and value of zoning regulations as a form of land use segregation
4. To recommend more appropriate approaches to the control of informal land use activity

Research Hypotheses

1. Development of the areas surrounding SIER industrial estate has been stimulated by its industrial development
2. Present land use segregation and zoning regulations are not adequate or appropriate mechanisms for development control in Indonesia.
3. Networks that develop between the formal and informal sector should be recognized as fundamental to the efficient and equitable functioning of the regional economy in Surabaya.

Research Questions

1. What is the pattern and processes of land use change in areas surrounding an industrial estate in a less developed country?
2. What is the nature of linkages between the formal and informal sector?
3. Does the formal or informal sector benefit most from these linkages?
4. Is the zoning system an appropriate tool for land use regulation, and, if not, what might be an alternative approach?

1.4 THESIS STRUCTURE

This research is structured into seven chapters which focus respectively on industrial development in less developed countries, industrial development and planning in Indonesia, the Surabaya case study, the SIER industrial estate case study, a discussion of the findings of the case studies, and conclusion and recommendations drawn from these findings.

Chapter 2 is a theoretical background for the topic based on industrial development in several less developed countries. It has three main sections: a general view of industrial development in less developed countries, the impact of industrial development, and planning problems and issues. The first section mainly discusses the main differences between industrial development in developed and less developed countries focusing on the role of the informal sector. The second section identifies the impact of industrial activity on its surrounding areas. The last section discusses planning problems and issues arising from industrial development.

Chapter 3 gives a background to industrial development in Indonesia. It profiles the structure and character of industrialization, industrial planning approach at national, regional, and local levels, and finally identifies ongoing industrial problems and issues. These three sections give an understanding of the approaches to industrial development by the Indonesian government, which provides the statutory and policy framework within which this sector operates.

Chapter 4 identifies the characteristics of Surabaya. It gives a background to Surabaya city, outlining its history, population profile, economic performance, and the character of government intervention. It also discusses the background to the development of the SIER industrial estate, including an analysis of the manufacturing activity taking place.

Chapter 5 focuses on the case study area. The first section explains the research approach and methodology. It identifies the key characteristics of the area and finally documents the findings of the research under the following headings: existing land use, commercial activity, and network analysis.

Chapter 6 discusses the findings of chapter 5 and relates these to the theoretical and operational background relating to industry and industrial planning. This section also revisits the research questions and responds to these questions.

The last chapter includes conclusions and recommendations drawn from the findings. Recommendations are presented to address the problems identified in the previous chapter.

2.0 INDUSTRIAL DEVELOPMENT IN LESS DEVELOPED COUNTRIES (LDCs)

Many less developed countries have adopted their urban planning systems from the developed countries (Kivell 1993), including their approach to industrial development and control. Much research has proved that the implementation of this approach is not adaptable to the culture of less developed countries (McAuslan 1985).

This chapter will describe the characteristics of industrial development in several less developed countries, such as India, Peru and Indonesia. This will demonstrate significant differences when compared to developed countries. In particular, the complementary development of an informal sector as a corollary to industrialization will be explored.

The chapter will be based on a literature review of industrial development. The structure of this analytical review will begin by analyzing industrial development in several LDCs, including both the formal and informal sectors, and identify the impact of industrial development in LDC. Finally, the chapter will examine the implication of industrial development in LDC, particularly in relation to the implementation of planning controls.

2.1 INDUSTRIAL DEVELOPMENT IN LESS DEVELOPED COUNTRIES

Recently, less developed countries have been categorized into three groups according to their level of industrialization (Balchin, Isaac & Chen 2000).

- *Maturing industrializing countries*, such as Singapore, Hong Kong, South Korea and Taiwan, are experiencing an age of high mass consumption. The majority of the workforce is employed in the industrial sector and only a small proportion of the workforce remains employed in agricultural activity.

- *Contemporary industrializing countries*, such as Columbia, Turkey, Indonesia, Thailand, and India. These countries still have the majority of their workforce employed in the agriculture sector but emergent industrial activity

linked to global markets is slowly transforming the character of their economies.

- *Emerging industrializing countries*, such as Vietnam, have started to increase industrial output but are still not attracting major overseas investment in export-oriented industries.

These three groups, although different, share similar experiences in the inception of industrial development. The location of this activity was typically located in primary gateway cities, such as in the principal ports where infrastructure and markets were comparatively well developed (Balchin, Isaac & Chen 2000). For example in Surabaya- Indonesia, the city has functioned as a focus for transport and communications networks since the 17th century (Dick, Fox & Mackie 1993). This has helped to connect hinterland areas as major providers of agricultural goods, with the port city as a point from which to distribute products to wider markets.

Pre-industrial cities in LDCs have shown a land use pattern with a traditional focus on religious or government buildings (Balchin, Isaac & Chen 2000). However, the cities have evolved to encompass wide ranging industrial activity focused on the ports, with central cores comprising local bazaars with densely developed commercial uses. The evolution of the pre-industrial city into an industrial city has generated increasing urbanization pressures. The economic growth and prosperity of the city has been a major force in determining the migration of people from rural areas to the cities. Most industrial cities in the LDC are experiencing rapid growth of urban areas following economic restructuring into industrial activity (van Geenhuizen & Nijkamp 1995). Balchin (2000, p.2) believes that the process of urbanization follows the same process as economic growth. High levels of urbanization are associated with high levels of industrialization that further raises the level of economic growth.

This economic growth has seen a massive labour shift from agriculture into industry (Mills & Hamilton 1989). Mills & Hamilton (1989 p.405) explain this shift as a parallel process to economic growth. With low levels of economic growth, most income is spent on food, orientating the workforce towards the agricultural sector. However, with higher levels of economic growth, there are demand shifts from food to manufactured products and services, fuelled by the workers relatively higher wages (Balchin, Isaac & Chen 2000).

Industrialization absorbs a large number of workers in the industrial sector, in both skilled and unskilled occupations. Urbanization is a likely consequence of industrialization in order to meet the needs of employers and employees. In the 1960s, almost 50% of urban residents in LDC were migrants attracted to jobs in industry (Williamson 1995). According to Turnham (1990), there are two types of migrants: temporary migrants who come to seek employment in the informal sector, and permanent migrants who are seeking jobs in the formal sector but who temporarily may accept work in the informal sector, or be unemployed.

An increasing population attracted to urban employment will produce the possibility of uncontrolled urban expansion, and a greater demand for urban infrastructure and urban land (Balchin, Isaac & Chen 2000). The problem can be analyzed from two different perspectives: the first is the perspective of development planning and the second is the capacity of government to manage urban change. These perspectives help to highlight the problems caused by industrial development.

As seen in India and other LDC cities, planning for industrial development has been adapted from developed countries in Western Europe and North America. According to McAuslan (1985), many LDC cities are over ambitious in adopting planning systems from Western cities. He argues that the urban resources, administrative systems, political philosophy, and bureaucracies in LDCs are different to those in developed cities. For example he considered that industrial zoning in India and Zimbabwe has distorted the land market, causing inflated land values close to industrial areas (McAuslan 1985). Poor migrants from rural areas cannot afford these land prices, nor can they afford the daily transportation cost of living further away from the industrial zone.

De Soto (1989) believes that these sorts of imbalances betweens workers' demands and land supply reflect the economic and political capacity of countries to deliver growth. He sees the problem as being derived from the incapacity of the state to satisfy the basic needs of urban growth. Legal systems in LDCs seem designed to support particular groups through legal access to information, money and public infrastructure. Not all residents can obtain this access and this inhibits the transformation from an informal to a formal economy.

In brief, industrial development in LDCs is facing problems in adapting to the demands of urbanization. Currently, control of urban land and equal access to legal status is a major problem in many LDCs.

The formal sector

The formal industrial sector has been defined as: commercial or industrial manufacturing activity that has a legal license to operate granted by government and is located on land that is appropriately zoned. The appropriate zone is usually referred to as an industrial/ commercial area or estate (Damayanti 2001). Industrial development in LDCs has tended to focus on the formal sector particularly, given the western traditions of industrial operators and their orientation to global markets requiring high levels of quality control, productivity and efficiency (ULI 1988).

Within urban economics, Tokman (Haan 1989) defines the formal sector as an economic unit that operates with advanced production and organizational techniques. The formal sector can also be regarded as a 'modern' sector located in an urban context and characterized by medium and large-scale enterprises displaying a high level of productivity. This manufacturing sector has created many jobs for skilled labour but has largely overlooked the employment needs of untrained, low-income migrant groups.

The formal sector of industrial development in LDCs can be characterized into two distinct components (Handinoto 1999). The first type has evolved from 'inception industry', traditionally located near the ports or near the source of raw materials. The government has moved to formalize this activity to protect its contribution to the developing economy and to encourage further industrial investment. The second type is planned development operating under government regulation in custom designed industrial estates. These activities have the legal and formal status required by industrial regulation and are managed by the local government sector (Kivell 1993).

India and Korea both initiated their industrialization process by focusing on the formal sector in the 1950s (Williamson 1995). The urban growth rates between 1950-1975 in both of these countries ranged between 24% and 83%. This caused land rents to rise, living conditions to deteriorate, and public services to fail

(Williamson 1995). So characteristic are these conditions that governments in LDCs often regard them as a part of the systematic urban transition from an agricultural to an industrial economy (Williamson 1995).

Theoretically, industrial areas located in an urban context should meet the following conditions (ULI 1988):

- Benefit the public interest through efficient land planning and growth management
- Ensure the compatible operation of business activities essential to an urban society
- Provide marketable products and services needed by society
- Assist the community by attracting new employment opportunities
- Contribute to community development

While these principles can be applied to LDCs, McAuslan notes that urban land regulation in India has failed to be implemented even though it espouses efficient and comprehensive planning principles (McAuslan 1985). This highlights the gulf between ideological intent and institutional capacity.

The industrial sector in LDCs is often defined as covering four divisions of the United Nations International Standard Industrial Classification (UNISIC), which are mining, manufacturing, construction and public utilities, electricity, gas, and water (Weiss 1988). Manufacturing is considered the most dynamic component of these sectors and is generally given a leading role in planning strategies.

Industrialization in LDCs currently focuses on the process of economic engineering to achieve:

- Higher value return for raw natural resources.
- Export oriented industrialization geared to markets in the developed world.
- Contribution to international trade via industrial output.
- New approaches to improve industrial performance through technological advancement and structural change in industry (Singh 1986).

According to Singh (1986) industrial development in LDCs is characterized by: a modern export-oriented manufacturing sector and a backward traditional agricultural sector. However in LDCs, the growth of manufacturing has also spawned, small and ancillary industries (Singh 1986). In Indonesia, the government has tried to strike a

balance between the modern manufacturing sector and the traditional/ informal sector (RI 1984b), although it is considered that it has been the modern export-oriented manufacturing sector that has benefited national income and achieved higher levels of per capita income following independence.

LDC governments have focused on two policy strategies: to support the small industries of the informal sector, and to support the activities of the formal sector. In some LDCs there have also been attempts to modernize the informal sector particularly in areas where it is seen to support manufacturing activity. These two, often contradictory approaches to development have implications for state policy.

The informal sector

As explained previously, the informal sector has been characterized by many terms, such as the 'hidden economy', 'working poor' (Haan 1989, p.3), 'unregulated sector' (Portes 1989, p.15), 'foot-loose activities' (Ramanujam 1998, p.51) and even 'greediness workers' (Portes 1989, p.11). Despite such disparaging descriptions, the informal sector can contribute up to 60% of the total input into the formal manufacturing sector (Jagannathan 1987) and is an important provider of employment (Ramanujam 1998).

The definition of the informal sector can be understood by comparing its definition with other industrial activities (Portes 1989). Portes defines three types of industrial activity in LDCs: the formal sector, the informal sector, and the criminal sector, based on the coverage of law. The sectors have been further defined as follows:

- The formal sector is an economic activity that has a legal final product and legal processes of production and distribution.
- The informal sector produces a legal final product, but incorporates illegal processes of production and distribution.
- The criminal sector has an illegal final product and illegal processes of production and distribution.

For the purpose of this thesis, based on the above explanations, the informal sector can be defined as follows: a commercial or industrial manufacturing activity that has no legal license from the government to operate the activity, but produces a legal final product or service, and is located in inappropriate land use zones. The activities

of the informal sector are also considered to lie outside the principal regulation of the state (Forbes 1988).

On the basis of the above definitions the informal sector can be seen to develop under two principal conditions; urbanization that is caused by industrialization, and a high dependency on the manufacturing sector. Urbanization has created the informal sector because of the incapacity of the city to absorb large numbers of poor job seekers among urban dwellers, and rural-urban migrants who have been unable to secure waged employment in the formal sector (Ramanujam 1998). As previously explained, the formal sector offers only limited job opportunities in the manufacturing and service sector.

According to Singh (1986), the small industries of the informal sector are mostly orientated to the production of consumption goods for daily use. Migrants must live close to their job or job opportunities since they lack the money and time to travel long distances to work (McAuslan 1985). Most of the daily needs of the migrants are supplied by the informal sector. Likewise, the informal sector provides cheap and efficient circulation of products and reducing the overall cost of transportation (Forbes 1988).

The early informal sector studies, e.g. ILO/ UNDP Employment Mission of Kenya, identified several characteristics of the informal sector (Haan 1989). They were:

- ease of entry
- reliance on indigenous resources
- family ownership of enterprises
- small scale of operation
- labor intensive and use of appropriate technology
- skills acquired outside the formal education system
- operating in unregulated but competitive markets

Another characteristic of the informal sector is its heterogeneity. Ramanujam (1998) states that the sector is not uniform; it manifests itself in different ways, in different countries, different cities, and even different parts of the city. Data on the informal sector is rarely collected by government, since this sector is too small to be covered by regulation, to report economic information, or to pay taxes (Thomas 1992). Its heterogeneity has been categorized into three segments (Awasthi, Bhandari & Pandey 1994):

- Established; operating under a roof as an economic enterprise.
- Foot-loose; operating in the open on pavements and market centers.
- Home-based; combining economic activities with domestic chores.

Proprietors in the informal sector respond to the incapacity of the city to provide formal job opportunities (De Soto 1989). Proprietors in Peru have no alternative but to operate illegally. It is costly and time consuming for the proprietors to establish themselves in the legal/ formal sector. The proprietors are mostly migrants from rural areas that could be categorized as low-income people or the urban poor. A recent survey estimates that between 20 and 60 percent of urban employment or non-agriculture employment is in the informal sector (Turnham 1990). From a land use point of view, most of the informal sector occupies land that is illegally occupied and illegally subdivided (McAuslan 1985). The land is often outside of core government concern, as it has no infrastructure or community services. The buildings are usually self-built, whether permanent or temporary.

As explained in the first paragraph, the informal sector also contribute significantly to economic growth of an order between 30 to 70 percent of the country' gross national product (Jagannathan 1987). It has also grown in parallel with the advent and spread of urbanization (Jagannathan 1987). While the sector often appears to be chaotic and complex, it is seamlessly networked into urban households structures providing the urban poor a range of livelihood opportunities. The informal commercial sector provides goods and services to low-income people and in many cases is the only affordable service provider (Haan 1989). With their many political, economic and legal problems, low-income people have to identify every available economic opportunity and seek to harness their earning potential and this sector can be seen as a creative response to an economic and political environment that constrains the opportunity for low-income earners to generate wealth and security.

In brief, the informal sector in LDCs is a part of the urban lifestyle. The advantage to national economic growth cannot be denied, even though LDC governments have little capacity to regulate the sector.

2.2 THE IMPACT OF INDUSTRIAL DEVELOPMENT

Industrial development in LDCs is currently facing major problems related to the process of urbanization. The capacity of the city to provide services to a growing population will decide the success of industrial development. Social, economic, and environmental concerns are major consequences of industrialization (Humphreys 1991). The impacts can be seen in many areas, such as: land price increases, population increases, environmental degradation and the break down of traditional family units. To understand the impact of industry on urban land, it is important to consider the power of industrial activity to reshape the city based on urban land economics.

Urban land economics

Since industrial activities in LDC cities have been developed, economic conditions, population, land use, and the size of the urban area has continually changed (Balchin, Isaac & Chen 2000). Urban growth not only changes urban land use, but also the intensity of that use.

In order to understand land use change, it is important to analyze the process of urban change. There are three stages of urban change: population growth, manufacturing development, and commercial needs (Standback Jr & Knight 1976). Firstly, people come to occupy land leading to urban growth. Secondly, the concentration of workers may be capitalized upon by manufacturing activity. Thirdly, commercial employment grows in response to the wages circulating in the community. These processes have occurred in most developed and less developed countries. Labor supply is a locational factor that may attract industrial activity (Hayter 1997). While the industrial activity matures, this attracts a commercial sector to service the growing local population.

Manufacturing activity can also cause land values to rise where a fixed supply of serviced land faces increasing demands (Balchin, Isaac & Chen 2000). The nearer the location to the center of urban activities, such as an industrial estate, the greater the land value and demand for complementary commercial uses. According to Evans (1985), commercial use is a high value urban land use that has responded to

decentralized manufacturing. Remote manufacturing activity creates the demand for nearby workers, leading to development of adjacent residential suburbs. To minimize transport cost to the city center, retailing and commercial uses have developed around manufacturing areas.

The location of any commercial activities is based on an assessment of profitability or utility (Balchin, Isaac & Chen 2000). Patterns of urban land use reflect the competition between supply and demand for sites. Where urban land supply is fixed or restricted; it is relatively slow to react to the dynamics of land use demand. Retail activity looks to maximize demand by locating as close as possible to consumers and to other retailers supplying commodities and services, but as far as possible away from its direct competitors (Stahl 1987).

In brief, population growth, the initiation of a modern manufacturing sector, and commercial development are three primary characteristics of urban change. These three sectors link with each other to reshape the city. The government as a main provider of urban infrastructure attempts to balance the needs, demand and supply of these three sectors.

Servicing workers

In terms of land value, manufacturing activity has the potential to increase land especially in those areas with high accessibility to the industrial estate. These areas are demanded by retail commercial and residential activity, which for the most part supply the needs or support the needs of the industrial workers. This linkage has become part of the production system (Hayter 1997).

According to Fredriksson and Lindmark (Hayter 1997), the production system is a set of linkages of materials, goods, services and information that are integrated to produce a particular final demand within and among firms. Commercial activities directly and indirectly support the production system. Direct relations include the contribution of goods or services to assist in the production of a final product. This includes retailers, wholesalers, financial organizations, and business services (Hayter 1997). Indirect relations refer to commercial activities that focus on servicing the wider urban and residential growth that has been attracted to the industrial districts.

As land values are determined by land accessibility, patterns of commercial uses can be seen to follow main roads (Balchin, Isaac & Chen 2000). Rapid urban growth has also placed great pressure on other government services and amenities, such as housing, water, electricity, education, health and other social services (Midgley 1982). As stated previously, industrial development, as a prime motor of urban growth, reshapes the city, and plays a major part in determining the housing needs and services of the urban population (Kivell 1993). In many LDC cities, such as Pakistan, India, Indonesia, Thailand, Nigeria, and Guinea, the urban land market is controlled by government (Amitabh 1997). The government has full authority over the land market, including service provision in areas surrounding manufacturing sites.

2.3 PLANNING PROBLEMS AND ISSUES

Introduction to urban planning

Before discussing the planning problems and issues that are faced by LDCs regarding to industrial development, it is important to clarify the basic definition and approaches to urban planning in both developed countries and LDCs.

According to Johnson (1997), urban planning is the process of making and implementing decisions about urban land use based on social and economic policies. Therefore, social and economic considerations are fundamental to planning. The planning process is responsible for housing, recreation, and social facilities as well as providing for community interaction and issue of fairness and justice that reflect prevailing social values.

In creating a clear structure for urban planning (Taylor 1998), planners in LDCs and developed countries use the regulatory tool of *zoning* (Johnson 1997). Zoning divides land into distinct categories of uses, permitting some and excluding others. According to Johnson (1997), it has legal and political impacts. Legally, it is used to protect particular land uses from competition while politically; it can be used as a device to achieve the social and economic aims of the country's leaders.

According to Amin (2000), historically, cities or urban areas in LDCs are primarily places for exchanging goods and services. Therefore, urban migration to urban areas in LDCs is relatively higher than in developed countries (Wu 2000). LDCs governments also see urban land as an asset, from which to extract profit in addition to its social and economic value to the community (Oberlander 1985). Other differences of planning issues between developed country and LDCs can be seen in Figure 2.1 below. These differences impact on the implementation of a planning system.

	ASIA	**WEST**
Economic growth	- rapid and sustained growth over a number of years - largely based on industrialization - some Asian nations are facing acute shortage of labour - regional differences	- slow economic growth - economic restructuring - de-industrialization and re-industrialization - focus more on service sector - high and sustained unemployment
Urbanization and population growth	- rapid urbanization and suburbanization - sustained rural to urban migration - still a very large young population - some Asian nations facing significant international migration of labour - low but rising car ownership	- steady state population - sunbelt migration - aging population - use of private cars
Urban development	- mega projects - vast investment for new infrastructure	- urban consolidation - continuing suburbanization
Income growth	- rapid rise of the middle class - employment expansion - still vast number of the poor especially in the rural areas	- squeeze on the middle class - growing income gap between rich and poor
Provision of infrastructure	- attention given to the overall poor infrastructure provision now regarded as an obstacle to economic growth - more and more attention to the possibilities of private sector provision of infrastructure	- deterioration of some infrastructure but lack of public capacity to provide for replacement - look towards the private sector and/ or users pays for funding - increasing demands placed on developers to provide infrastructure as part of the development consent process
Environmental awareness	- environmental concerns amongst the public still nascent - large and growing environmental/ pollution problem	- very strong environmental concerns amongst the citizens - increasing political response to incorporate environmental concerns into planning decision

FIGURE 2.1: CONTRASTING ISSUES ASSOCIATED WITH PLANNING IN ASIA AND THE WEST (WU 2000, P.371)

Zoning regulation is a very common tool in urban planning systems. Structuring urban areas into several zones is the main role of the zoning system. Before zoning, urban areas had no control over what was built where and had to tolerate land use

patterns based solely on the land market (Johnson 1997). Typical zoning policy consists of a zoning ordinance, providing the statutory authority to impose a zoning system and an official map outlining a zone for each parcel of land in the urban area (Johnson 1997).

Urban management in developed countries are based on a legal framework. This has been adopted by LDCs from their colonial occupiers (McAuslan 1998). In the colonies, formal laws provided the legal framework for urban development. This framework is in contradistinction to current conditions in most LDCs, where 40 to 70 percent of the population are living under illegal conditions (Fernandes & Varley 1998).

Zoning regulations only control those in the legal position to respond to the requirements of the planning system. The informal sector lies outside this regulatory framework. McAuslan (1985) suggested that in LDCs, in order to integrate illegal land occupiers under the legal framework of zoning, positive incentives were required as opposed to negative controls. However, most LDCs currently use the negative control aspects of zoning regulation, such as building codes, legal procedures and penalties, with the effect of harassing the informal sector and its low income operators. McAuslan (1985) stated that regulation for low-income people should be seen as a code of guidance opposed to a set of rules that penalize every error. Countries need to develop differing approaches to planning control to accommodate low-income peoples as well as the development industry.

Planning problems and issues in LDCs

Current approaches to planning regulation in LDCs are facing many problems in implementing the planning approaches adopted from developed countries. Developed countries and less developed countries have significant differences in their approach to development. LDCs experience a very rapid rate of expansion mainly because of migration to the cities from the rural areas during development (Evans 1985). LDCs also have to address issues surrounding the development of an informal sector, and squatter settlements (Evans 1985).

In addition, urban resources, administrative systems, political philosophy, and bureaucracies in LDCs are different to those in developed countries (McAuslan

1985). Most LDC government officers have to have regard to two 'masters': their constitutional obligations and local property elites who help keep particular governments in power (Amitabh 1997).

Few social scientists have been appointed to government planning institutions. Rather development issues are dominated by architects and economists. In this environment, plans are prepared with a lack of understanding of social concerns and the long-term requirements of the city and its people. A further problem of planning in LDCs is the role of the state in allocating urban resources, such as land and public infrastructure.

Industrial planning in India is prepared under an urban Master Plan, which is developed based on the views of planning consultants schooled in Western European, or North American Planning ideology. The British planning system has been exported around the world. All over India, town and country planning laws are based on English legislation of the 1930's. In Indonesia, the current planning regulation and laws are adapted from original Dutch legislation.

According to Singh (Singh 1986), it is important for LDC' government to take into account the current condition of land use occupation through the modernization of the traditional/ informal sector, and the development of linkages into the formal sector, opening the possibility for more integrated land use outcomes.

Ideally, the government should pursue the following conditions of land use control and regulation (McAuslan 1985):

- Efficiency; ensuring a sufficient supply of urban land at an affordable price.
- Health, safety, and welfare; concentrating on reducing overcrowding, limiting pollution, and improving the safety of buildings.
- Equity; ensuring that certain classes of people are not denied land.
- Adaptability; ensuring that the city is adaptable to people's needs and desires.
- Conflict resolution; regulation should be able to mediate competing interests in land disputes.

In summary the planning problem in a contemporary industrializing country becoming a maturing industrializing country, is blocked by the inefficiency and unwillingness of the government to respond to rapid urban population growth as a

natural impact of industrialization. The standard response is to segregate land based on Western planning theory; while in reality this constrains the interdependency between the formal and informal sector.

2.4 SUMMARY

Indonesia, and other LDC countries such as Brazil, Mexico, Thailand, and India, are categorized as contemporary industrializing countries, with the majority of the workforce employed in the agriculture sector but with emergent industrial activity linked to global markets slowly transforming the character of their economies (Balchin, Isaac & Chen 2000). These countries like many developed countries have similar experiences in the inception of industrial development.

The evolution of pre-industrial city to industrial city has been generated by several processes:

- The absorption of large number of workers in the industrial sector, in both skilled and unskilled occupations (Williamson 1995)
- The growth of as a service economy to meet the needs of employers and employee (Turnham 1990)
- The attraction of the prosperity of the city in encouraging rural to urban migration (Mills & Hamilton 1989).

An increasing urban population has produced uncontrolled urban expansion, and a greater demand for urban infrastructure and urban land. This has challenged the capacity of planning systems adopted from developed countries (McAuslan 1985).

Industrial development in LDCs has tended to focus on the formal sector, with its western traditions of global market orientation, high quality control, productivity and efficiency (ULI 1988). This focus on the formal sector has caused land rents to rise, living condition to deteriorate, and public services to fail. The conditions are sometimes regarded as a part of the systematic urban transition from agriculture to an industrial economy.

The informal sector has developed in parallel with the processes of industrialization and urbanization in LDCs. The informal sector has developed because of the incapacity of the state to absorb large numbers of job seekers among the urban

dwellers, and rural-urban migrants who have been unable to secure waged employment in the formal sector (Ramanujam 1998). A recent survey estimates between 20 and 60 percent of urban employment or non-agriculture employment is in the informal sector (Turnham 1990).

LDC governments have tried to support the informal sector, which, in many cases, support the activities of the formal sector. In some LDCs there have also been attempts to modernize the informal sector particularly in areas where it is seen to support manufacturing activity.

Industrial development in LDCs and developed countries has encouraged the growth of commercial activity as a response to the wages circulating in the community (Standback Jr & Knight 1976). When the industrial manufacturing activity matures, it attracts a commercial sector to service the growing local population. Urban change near manufacturing areas could also be seen as servicing industrial workers. The service sector, includes housing and commercial activity, and has indirect networks to the production system of the manufacturing sector.

The major issue of industrial planning in LDCs is in implementing an appropriate planning approach. The planning problem in a contemporary industrializing country is related to the inefficiency and unwillingness of the government to respond to rapid urban growth as a consequence of industrialization.

3.0 INDUSTRIAL DEVELOPMENT AND PLANNING IN INDONESIA

The previous chapter outlined the characteristics of industrial development in LDCs in order to demonstrate the significant differences to those characteristics in developed countries. It examined the complementary development of an informal sector as a corollary to industrialization. This creates a problem when the government is unable to adapt to the demands of urbanization that follow industrialization. Due to the change of government in Indonesia, the role of the government in facilitating efficient and balanced development is becoming more significant, and highlights the need to develop a planning system capable of responding to the new and emerging socio-economic conditions in the nation.

Indonesia is used as a case study in this research and more particularly the capital of East Java province, Surabaya. This chapter will explain the wider context of Surabaya by understanding national, regional, and local planning policies relating to industrial development. It will also examine current planning problems and issues facing industrial development in Indonesia.

The findings of this chapter will be mainly based on government documents prepared at the national, regional, and local level. The government levels that will be analyzed will accord with the location of the case study, Surabaya municipality, East Java province, Indonesia.

3.1 HISTORY OF INDUSTRIAL DEVELOPMENT

Indonesia

Indonesia is located to the south and east of mainland Asia and north and west of Australia (Forbes 2000). It has almost 13,700 islands that are spread across 5,100 sq km. It has a total land area of 1,904,443 sq km (as seen on the picture below).

The 1990 census showed that Indonesia's population was 179,194,223, showing an annual increase of almost 2% from the previous census in 1980. Sixty percent of the

total population occupy the island of Java, which accounts for less than 7% of the total land area (Silas 1993). Indonesia is now the fourth most populous country in the world, after China, India, and the US.

FIGURE 3.1: MAP OF INDONESIA (CIA-U.S. 2002)

According to 1999 data, Indonesia had 99 million people in its labour force (Forbes 2001). This labour force consisted of:

- 45% in the agriculture sector
- 39% in the services sector
- 16% in the industrial sector

An estimated 41% of the total labour force was female, up from 36% in 1980. It has been estimated that two million new jobs are created each year in Indonesia (Forbes 2001).

The main manufacturing activity is in food and beverages, tobacco products, textiles and garments, motor vehicle parts, and electrical appliances (Forbes 2001). Since 1980, labour intensive manufacturing, particularly footwear and glassware, have grown rapidly. Most of Indonesia's manufacturing capacity is produced via joint

venture companies owned and managed by a combination of foreign and local investors.

Indonesia is a constitutional republic with an elected President, an elected Parliament, and an appointed judiciary. The President and the ministries have more power than the Parliament or the judiciary (Forbes 2001). The hierarchy of power, which extends from small neighbourhood units to provinces, can be classified as follow:

1. Provinces or special regions or special capital city regions, are overseen by governors appointed by the President, on advice from the minister of home affairs and the provincial parliaments
2. Districts or municipality/ city governments (*kotamadya*), are governed by mayors working with a locally elected legislature
3. Sub-districts (*kecamatan*), are governed by a head of sub-district (*camat*) who is appointed by the mayor.
4. Villages (*kelurahan*), are led by a head of village, appointed by the head of the sub-district (*camat*)
5. Neighbourhoods (*rukun tetangga*); a 'head of neighbourhoods' controls neighbourhood units and are appointed by the residents. This level of government is not formally recognized, and the 'head of neighbourhood' works as a volunteer (The-Library-of-Congress 1992c).

This hierarchy of government ensures even the smallest communities are reachable and controllable by national and provincial government policy (as shown on diagram below).

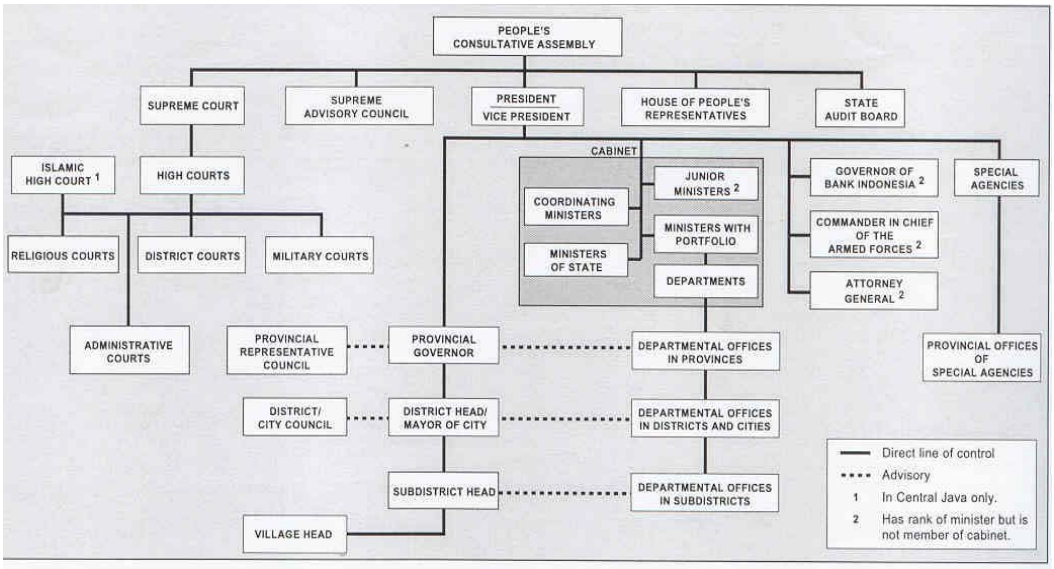


FIGURE 3.2: THE HIERARCHY OF INDONESIAN GOVERNMENT LEVEL (THE-LIBRARY-OF-CONGRESS 1992C)

As seen on the diagram above, the lowest level of government control is the village head, who has a direct line of control from the sub-district head to the President. Policy and regulation from central government has a clear line of responsibility right down to the village level. In brief, the rigid hierarchy and structure of government supported by a powerful bureaucracy has lead to an authoritarian and centralized approach to development particularly in relation to planning for industrial development.

Change of government in Indonesia

According to Johnson (1997) government planning and politics affect each other because politics is the process of managing the common life of a society, including its urban land use pattern. Urban development is both private and public in scope, characterized by an interplay between imagination and regulation, between free individual will and collective choice as expressed in codes and master plans. Criteria for planning fairness on the part of the government and the means of reaching it are constantly open to political dispute.

Currently, Indonesia is experiencing a change in government from the New Order to the Reformasi regime. According to Soebhan (2000), under the New Order regime, Indonesia bureaucracy was corrupt and ineffective. During this time, the bureaucracy was used as a tool to support the government's ruling political party. The Reformasi government has tried to set up a new system of government to restore confidence and integrity required by the Indonesian community.

According to Budiman (1999), in the last half of the 20th century, Indonesia experienced political, economic, and social convulsions. Economically, the country was in chaos and the depressed economic situation was compounded by the Asian economic crisis. Politically, the nation experienced a shift of ideology towards more responsive and democratic forms of government. Socially, the issue of race and religion became a point of both political identity and division.

The new Reformasi government pursued a change from top-down decision-making towards more inclusive and participatory governance (Klinken 1999). This has also seen the acceptance of grassroots activity through community based non-government organizations (NGOs). Before the Reformasi, the government ignored grassroots activity as a marginalised political activity (Lane 1999). The centralized government institutions of the New Order have been replaced by a more decentralized structure. Currently, the country has been heading towards a more open political future within a more representative and participatory political framework (Budiman 1999).

During the reform process, the response of regional actors (politicians) was varied (Erawan 1999). There was significant variation in the content and scope of such responses; from progressive enforcement to conservative caution. The conservatives are still waiting for guidance from the central government, as with their dealings with the previous government. By contrast, the progressives are the architects of the new and evolving government system. For example, they have demanded the resignation of ministers/ governors/ mayors/ representatives, who are perceived as the remnants of the previous regime. Candidates for public office are under pressure to debate their programs publicly, and to criticize central government intervention in regional politics and economy, and to promote regional fiscal autonomy.

According to Soebhan (2000), in the New Order government, the Indonesian bureaucracy was a political bureaucracy that focused on top-down instruction in order to support the government's ruling political party. Currently, the new Reformasi government tries to balance top-down and bottom-up systems to create an environment where civil society can independently support local development based on its current needs. However, the capacity of civil society to accommodate such change in such a short period of time has been questioned (Hilly 2002, interview, 15 May).

Industrial Development

Industrialization in Indonesia grew rapidly in the late 1960s, when the government adopted industrialization as one of their key strategies for economic growth (The-Library-of-Congress 1992b). Industrial production, as a share of total GDP, grew from 13% in 1965 to 37% in 1989. Before 1994, Indonesia depended almost entirely on oil and timber exports. After 1994, non-oil exports increased to over 60% of the total earnings of the country, with industrial manufacturing output increasing faster than any other export commodities.

The Indonesian government has classified the manufacturing sector into four categories (BPS 2000):

- Large industries, employing at least 100 workers and comprising a minimum land area of 1,800 sq m.
- Medium industries, employing between 20-99 workers and occupying a land area of between 960 to 1,800 sq m.
- Small industries, employing 5-19 workers and occupying a land area between 600 to 960 sq m.
- Household/ home industries, employing between 1 and 4 workers and occupying a maximum land area of 600 sq m.

The growing export of manufacturing products offered many employment opportunities. In 1986, wood products, textiles, and garment industries accounted for 32% of the industrial labour force employed in large and medium size firms. In contrast, small and home-based industry provide for more extensive job opportunities in Indonesia (almost 45%) (Forbes 2001). This has a major impact on the GDP of the nation. The distribution of the benefits of economic growth depend

on how government policies affect nation wide job opportunities combined with earnings in the agricultural and service sectors (The-Library-of-Congress 1992a).

Large and medium manufacturing industries have tended to be the focus of government policy (The-Library-of-Congress 1992b). However small and home-based industry employing family members are far more numerous and supply the majority of jobs. Statistics for these types of industry are traditionally unreliable because of the seasonal employment patterns and problems of data gathering (The-Library-of-Congress 1992b). A review of statistical data in 1986, showed that small industries employed almost 3.9 million workers, compared with 1.7 million in medium and large scale industry (The-Library-of-Congress 1992b).

Like any other LDC, industrial development in Indonesia is facing a significant problem: the growth in the modern industrial sector can only provide a small share of total employment opportunities (The-Library-of-Congress 1992a). The 1986 economic census showed that the 13,000 firms with more than 20 employees in all industrial sectors (except oil and natural gas processing) only employ about 10% of the total workforce (The-Library-of-Congress 1992a).

3.2 NATIONAL PLANNING FOR INDUSTRIAL DEVELOPMENT

Indonesia has implemented a series of Five Year Development Plans *(Rencana Pembangunan Lima Tahun/ REPELITA*) since 1969. These plans managed to deliver significant improvements in the social and economic well-being of the population (Silas 1993). REPELITA was designed as a basis for the implementation of a Broad Outline of State Policy (*Garis Besar Haluan Negara/ GBHN*).

According to GBHN (RI 1984b), industrial development was the main focus for development of the nation. In the 1984 GBHN outlined the primary aim of development as providing the basic needs of the people by creating a balance between the growth of modern industry and the agricultural sector.

While industrial development has been identified as an important factor in determining the future development of the nation, it required comprehensive planning and integration with other sectors of development to secure a well-

balanced relationship between modern and traditional industry, between export and local industry, and between large and small industry.

The GBHN states that Indonesia's industrial development should create a modern industrial sector characterized by mature, harmonious, strong, and advanced industries (Perindustrian 1994). 'Mature' in this sense means the capability to grow by its own strength. 'Harmonious' means successfully creating a balance between industry and the natural environment. 'Strong' means the capability to adapt to changing economic circumstances. 'Advanced' means the capability to lead the economic growth of the nation (Perindustrian 1994).

There are three priorities in current industrial planning (Perindustrian 1994) that have been adopted in REPELITA-VI:

1. Resource based industries, focused on the development of local natural resources.
2. Labour intensive industries, capable of absorbing large numbers of workers
3. Technology based industries

While, previous planning looked for a balance between industrial development and traditional agricultural development, current planning is predicated on industrial development already reaching a stage of maturity. In fact, many of the smaller traditional industries still operate outside of government policy and information networks, allowing the success of industrial development to be measured on the basis of the performance of large or medium scale industries (The-Library-of-Congress 1992b).

3.3 REGIONAL PLANNING FOR INDUSTRY

Regional planning, known as provincial planning in Indonesia, is undertaken with the authority of the Governor, under agreement from the provincial elected legislature and based on REPELITA and also the GBHN. This planning operates at a statutory and policy level, providing broad development guidelines to the Heads of Districts and Municipalities.

Industrial planning in East Java Province

Since 1989 East Java province has shown significant growth in the agricultural sector, and is known as the national source of hulled rice (Perindustrian 1994). On average, the growth of the agricultural and manufacturing sector is between 1% and 2% per annum with almost similar growth accruing to each sector. From 1989 to 1992, East Java's economic growth increased of between 7% and 9% per year.

Evaluation of industrial development in East Java in the 1990s (Perindustrian 1994) identified several significant issues:

- A group of multifarious industries (*Aneka Industri*) dominated export and production.
- The main contribution of small industries to economic growth was to provide local job opportunities.
- The industrial sector in East Java is made of a variety of small and large scale industries, including craft, chemical, machinery, and electronic production.

FIGURE 3.3: EAST JAVA TOURIST MAP (EAST-JAVA 2002)

Current planning of industrial development in East Java prioritizes the following criteria (Perindustrian 1994) for attracting new industrial development:

1. Industrial activity that has high value added production processes and uses advanced technology to increase the rate of investment in the local area
2. Industrial activity that has the potential to become internationally competitive
3. Industrial activity that has the potential for future economic growth but is currently constrained by particular local circumstances.

Based on these characteristics, the East Java government has focused on the following types of industry (Perindustrian 1994):

1. Agro-industry, including dairy, fisheries, forestry, and plantation timber
2. Mining industry
3. Small industry and agro-village industry
4. Machinery industry, including electronics, and automotive spare parts
5. Chemicals industry.

The government also identified a lack of equity in growth opportunities, between urban areas and rural areas, particularly in remote areas. To solve this problem, the government focused industrial planning on supporting smaller industries. Their programs included:

- supporting small craft industry in rural areas
- supporting industrial activities in remote and poorer areas
- supporting export oriented craft industries
- supporting small industry near established industrial zones, especially those industries with linkages to medium and large scale industry (Perindustrian 1994)

In summary, before 1992 the agricultural and industrial sector was a major component of East Java's economic growth. In 1994, when GBHN focused on high technology industrial activity, the government paid little attention to the activity of the traditional sector, including agriculture. Current industrial development planning is focused on promoting large to medium sized industrial activity, although the government also tries to support the growth of smaller industries where there are linkages into large-scale industrial production.

3.4 LOCAL PLANNING FOR INDUSTRY

Introduction to municipality planning

REPELITA is the master plan for Indonesia's development and comprises various components, including economic, social, cultural, and political development. The plan is general in its approach. At a regional level (known as the provincial level) REPELITA and other regional plans are transformed into more operational criteria through the preparation of a City Plan (*Rencana Kota*). The City Plan is a physical land use plan based on social, economic, and environmental considerations.

According to Dick (Dick 2002, p.317), in 1965, after the expansion of Surabaya city to the south, there was no plan for how the enlarged area was to be utilized. The Surabaya Municipal Assembly (*Pemerintah Kota Surabaya*/ PEMKOT-Surabaya) applied the Dutch town plan *(Stadsplan)* until January 1970 when the government undertook the preparation of the Surabaya master plan. The basis of the plan were zoning maps outlining future land use allocation to 1990 and five-yearly staged release rural land to be converted to urban use (Dick 2002, p.378). The current plan is the 2010 Master Plan, which now functions as the decision-making framework for urban planning activity.

According to the Minister of Home Affairs' regulation No.2/1987 (PEMKOT-SBY 1991), a comprehensive city plan consists of three types of plans;

1. Master plan (*Rencana Tata Ruang Wilayah/ RTRW*)
   This plan is prepared under the authority of the Mayor and is designed by the City Planning and Development Division (*Badan Perencana dan Pembangunan Kota/ BAPPEKO*). It has a scale of 1:10,000 or 1:20,000 for urban land.
   This plan explains:
   - The existing condition of Surabaya; including its geographical context, population profile, and social conditions
   - The general policy of local development for long term development of the city
   - Analysis of land use planning proposals
   - Maintenance and control regulations to be applied to development

2. Detailed Plan (*Rencana Detail Tata Ruang Kota/ RDTRK)*

   BAPPEKO is prepared under the authority of locally elected legislatures. The plan has a scale of 1:5,000 for urban land and is based on unit (neighbourhood) development opportunities.

   This plan explains:

   - Potential for unit development
   - Policy approaches to local development
   - Urban land uses/ zones
   - Development constraints

3. Technical plan *(Rencana Teknis Ruang Kota/ RTRK*)

   This plan is designed by the Urban Planning Division *(Dinas Tata Kota)* under the agreement of the locally elected legislature. It has a scale of 1:1,000.

   This plan outlines:

   - Structure of urban land use
   - Land use plan
   - Building codes
   - Utility and open space plan
   - Environmental protection plan
   - Development control policies

At the municipality level, land use control uses a zoning approach of the City Plan (PEMKOT-SBY 1991). These plans aim to achieve:

- Economic efficiency and land use productivity
- Social responsibility
- Protection of the public interest in the development process (PEMKOT-SBY 1991).

In Surabaya municipality, the Master Plan comprises the total land area of Surabaya and identifies future land use controls, as well as the Detailed Plan. Until May 2002, the Technical Plan comprised only 60% of the total land area of Surabaya (Djajawardana 2002, interview, 17 May). The remaining 40% of the urban land area has no operative land use controls and competition between supply and demand determine land use. Land rights in Surabaya have influenced the development of the Master Plan (Dick 2002, p.378). Since 1978 many families and enterprises have been subject to mass eviction. The Master Plan allowed the Municipality Assembly

to regularize the pattern of unregulated land use, which was contrary to the Master Plan.

In summary, government at a municipality and district level are required to consider the economic, social, and political interests in planning outcomes, and to ultimately reflect these in the determination of the physical arrangement of land uses. However, the ability of the government to implement land use control through technical plans is limited, where the detailed plan fails to be supported by the local community. In addition, physical plans of each city effectively require local government to implement land use policy and there is a lack of integration between local and provincial planning.

Industrial planning in Surabaya municipality

Surabaya has a long industrial history dating back to the Industrial Revolution. At the end of nineteenth century Surabaya, ranked alongside Calcutta, Singapore, Hong Kong and Shanghai as workshop base to support industries related to sugar milling, railways, and shipping (Dick 2002). Currently, Surabaya is the second busiest industrial centre within Indonesia, with an industrial structure dominated by a large number of smaller industries. These industries have strong networks and linkages into the large-scale business sector.

Industrial policy at a provincial level is also applied at the municipality level, and both are controlled by the Ministry of Industry. Development of industrial activity, including commercial activity, requires business activity permissions (*Surat Izin Usaha/ SIU*) from the Ministry of Industry (RI 1984a). SIU are finally approved by the Mayor on advice from the Ministry of Industry. Industrial activity in Surabaya has been identified as a strategic priority (PEMKOT-SBY 1994). According to the Master Plan for Surabaya 2005, current industrial policy is focused on attracting non-polluting, high technology, large scale, import substitution, small, and multifarious industries (PEMKOT-SBY 1994).

The existing number of industrial establishments is almost 9,200 units, which comprise:

- 65 factories producing machinery, basic steel, and electronics
- 8 factories producing chemicals

- 730 factories of multifarious industry, and
- 8,326 units of small scale industry (PEMKOT-SBY 1994)

According to Dick (2002), the small-scale industries are dominated by the informal sector. This sector is elusive because of the huge number of enterprises and the paucity of data, which are not recorded by standard registration and statistical reporting. Dick also states that the income-earning activities of this sector are often overlooked. Nevertheless, Surabaya City Central Board of Statistics in 1996 estimated employment in the sector at half a million in the Surabaya municipality and almost one million in greater Surabaya (Dick 2002). The locational choice for industrial activity in Surabaya has been predominantly in the south and eastern suburbs although multifarious and small industry is located throughout the urban region.

An industrial zone is one of nine land use zones that are identified by the government at a municipal level. According to the Master Plan for Surabaya 2005, the other land use zone are: agriculture, fisheries, salt land, industrial, residential, trading, service, public facility, and special land use (mainly natural environmental protection (PEMKOT-SBY 1994) (see figure 3.4).

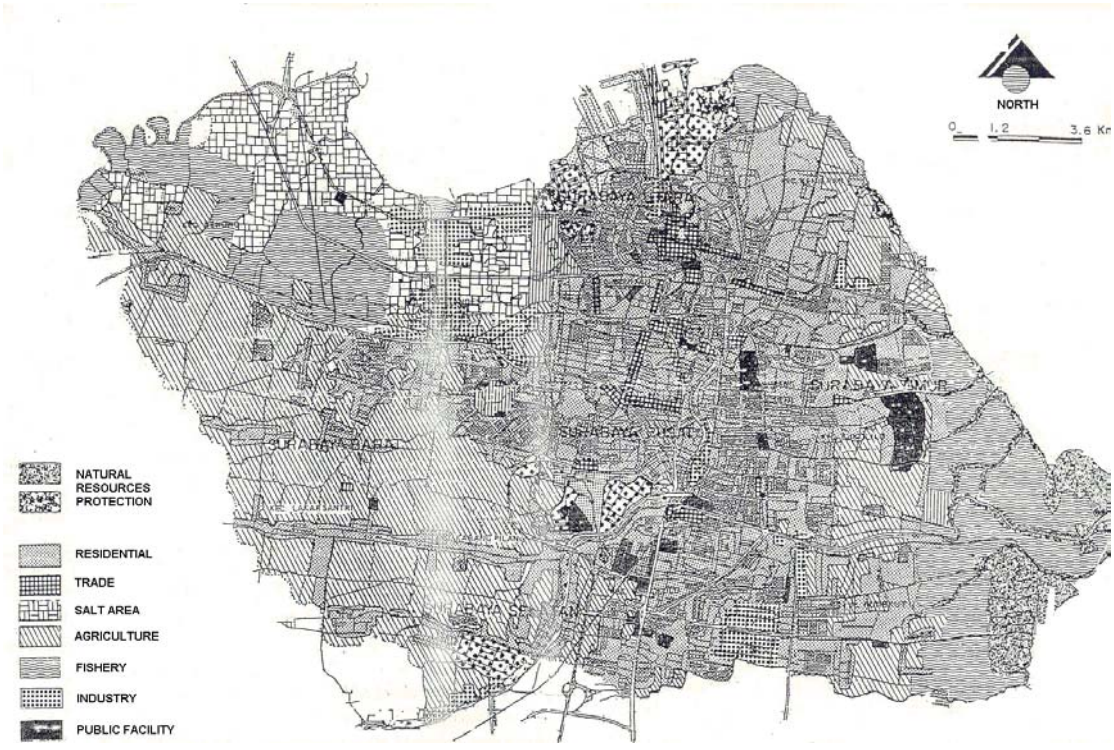


FIGURE 3.4: SURABAYA' LAND USE ZONE FOR 2005 (PEMKOT-SBY 1994, P. I-22)

There are two industrial estates in Surabaya; Surabaya Industrial Estate Rungkut (SIER) and PT. Suri Mulya industrial estate. SIER is located in the Rungkut, Tenggilis Mejoyo, and Gunung Anyar districts, and occupies 200 ha of land. PT Suri Mulya industrial estate is located in the Tandes district and occupies 150 ha. Industrial land use is also concentrated in Tandes, Asemrowo, Suko Manunggal, and Benowo districts, which are in the eastern and southern suburbs of Surabaya (as shown on figure 3.5 below).

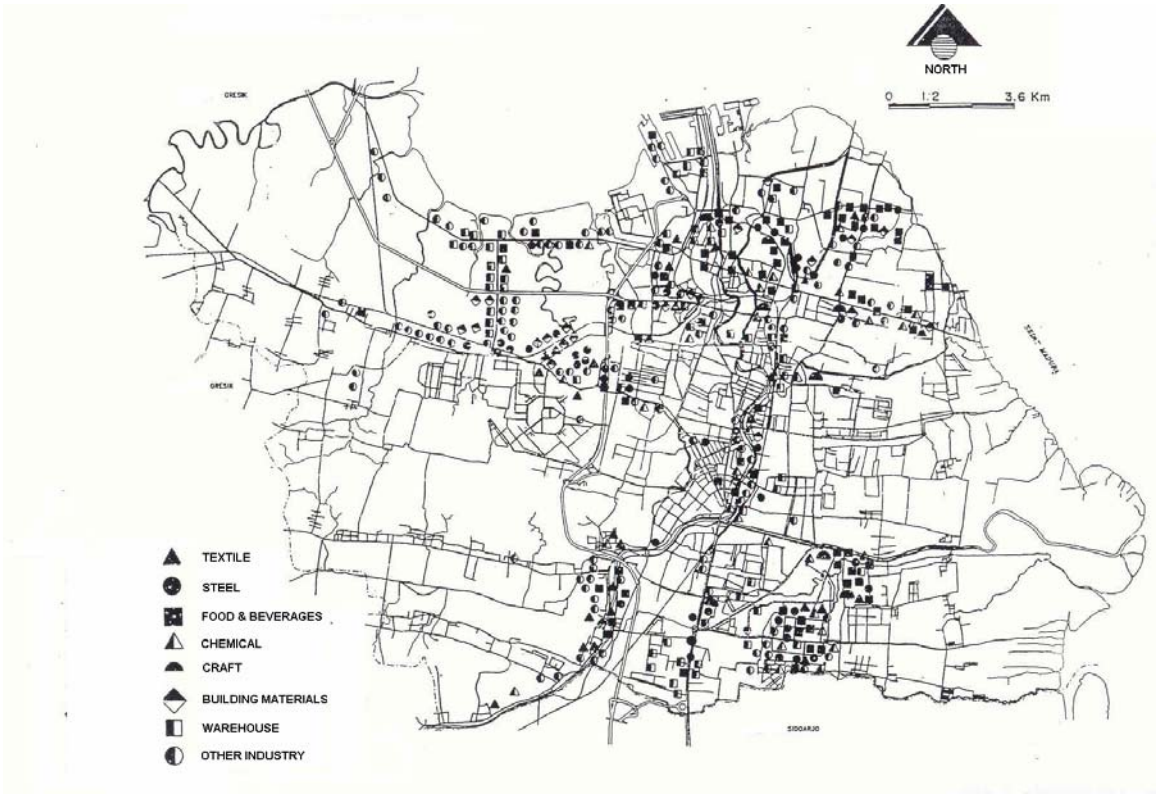


FIGURE 3.5: THE LOCATION OF INDUSTRIAL ACTIVITY IN SURABAYA (PEMKOT-SBY 1994, P. I-36)

There are several important characteristics of industrial production and planning in Surabaya (PEMKOT-SBY 1994):

- Polluting manufacturing industry is being encouraged to relocate to industrial estates outside Surabaya to minimize environmental degradation.
- While there is surplus land in existing industrial estates, facilities and infrastructures service are often lacking.
- Newer industrial development in Surabaya is focusing on clean, high technology industrial activity.

- Small home-based industries that are located inside residential areas are required to conform to a standard requiring a maximum workforce of five workers.
- The warehouse area located on the northern side of Surabaya close to the harbour is designed to facilitate industrial activity, oriented to import/ export activity.
- The total industrial and warehouse area is about 3,000 ha and occupies almost 1.2% of Surabaya's metropolitan region.

In summary, industrial policy in Surabaya conforms to regulations prepared by the Ministry of Industry at a provincial and municipal level. More detailed land use regulation is under the authority of local government, including control over the location of industry. These regulations do not limit the size and type of industry that may be developed.

3.5 INDUSTRIAL PROBLEMS AND ISSUES

Industrial development in Indonesia is developed under a comprehensive planning system designed to support Indonesia's goal of economic development and community strength. Industrial planning operates under an established policy hierarchy from national, provincial, down to a local level. The plans prepared at a national and provincial level are policy oriented, providing guidelines for local industrial development.

At the local level, industrial planning includes two levels of policy and land use guidance. Industrial planning policy at the local level is generated from the provincial level, and both levels are under the control of the same government agency. However the allocation of industrial land use is determined by local government, based on the industrial policies of local and provincial government.

Industrial planning in Indonesia faces all of the problems faced by other LDC countries. Despite the influence and priority given to industrial activity by the government it still only employs 10% of the total workforce (The-Library-of-Congress 1992a). The incapability of the government to extend job opportunities in a modern industrial sector has weakened the power of industrialization in Indonesia. This can be attributed to the focus on large-scale modern industrial activity and the failure to

give greater attention to the existence of smaller industrial activity, as part of the network of economic growth.

Industrial policy at a provincial and local level is searching for a balance between modern industry and traditional industry, by encouraging the linkage between the two activities. The government appears to find it difficult to control small scale industrial activity due to the transience and variety of the sector. Since it is difficult for the government to regulate small industry, these linkages are often difficult to determine and limits the ability of the local planning system to respond to their needs.

In summary, industrial planning in Indonesia is looking for a balance between modern industry and a smaller traditional industrial sector. This goal is frustrated by local regulations and policies that may act to inhibit industrial growth, diversification and employment.

3.6 SUMMARY

In the 1960s the central government adopted industrialization as one of the key strategies of economic growth. Industrial planning at the national level prioritizes the creation of a modern manufacturing sector characterized by mature, harmonious, strong, and advanced technology. Industrial planning in East Java province focuses on manufacturing activity that has high-value added production processes and uses advanced technology to increase the rate of investment in the local area. In Surabaya municipality, policy is focused on attracting non-polluting, high technology, large scale, import substitution, small, and multifarious manufacturing.

Indonesia is the fourth most populous country in the world with a total population of almost 200 million. The majority of the population lives in Java. With the growth of the manufacturing sector, the job opportunities in the sector have increased but still only contribute 10% of the total workforce. In East Java province, small industries provide contribute the greatest number of local job opportunities. The imbalance between industrial development and job opportunities has a major impact on the GDP of the nation. The distribution of the benefits of economic growth depends on how government policies affect job opportunities nationwide allied with earnings in the agricultural and service sectors.

Industrial development planning at the national level has been implemented through REPELITA and GBHN. While, past planning approaches looked for a balance between industrial development and traditional agricultural development, current planning is predicated on industrial development reaching a further stage of maturity. In fact, many of the smaller traditional industries still operate outside of government policy and information, allowing the success of industrial development to be measured on the basis of the performance of large or medium scale industries.

Industrial planning at the regional level recently focuses on the success of large and medium scale industry, even though the government also tries to support the growth of smaller industries where there are linkages into large-scale industrial production. At the local level, known as the municipal level, the ability of the government to implement land use control through technical plans is limited, where the detailed plan fails to be supported by the local community, and there is a lack of integration between local and provincial planning.

4.0 SURABAYA CASE STUDY

The previous chapter examined the wider context of Surabaya, by understanding national, regional, and local planning policies relating to industrial development. It also analyzed current planning problems and issues. The main focus of industrial development at the national, regional, and local level is the modern manufacturing sector with an emphasis on high technology industry. This focus on large and medium scale industry has inhibited the support for smaller industries.

This chapter will explain the evolution of Surabaya as an industrial city, historically and economically. It will describe the uniqueness of Surabaya and the strength of Surabaya among industrial cities in Indonesia. This will be outlined in two sub-sections: a background to Surabaya, and a background to the SIER industrial estate, used as a case study in this research. The chapter will also address the research question relating to the process of land use change in the context of government intervention in planning and development. Materials for this chapter was based on government' documents, interviews with planning and SIER officials, and web based information.

4.1 BACKGROUND TO SURABAYA

History of Surabaya

Once upon a time, on the coast in Java called Tanjung Perak, there lived a variety of sea animals. They lived in peace and harmony. Only an octopus, called Cumi could not get along with the other sea creatures. Cumi was very cruel and messy.

One day Cumi goes to a fish's house-called Suro. He tells Suro that one of the crocodiles, Boyo, will soon attack Suro. Suro and Baya, are both good and kind to each-other. They are best friends. So of course, Suro does not believe Cumi.

Finally, Cumi goes to Boyos house. This time Cumi's lies are so believable that Boyo believes what Cumi has to say, He gets upset and swims in a hurry to Suro's house.

Boyo is very angry and is strong and cruel. He attacks Suro and wounds him. Suro is still calm and does not fight back.

But knowing that Boyo will never stop attacking him. Suro becomes brave and strong. He fights Boyo bravely. The sea turns red with their blood.

In the place where they fought was built the city called Suroboyo. Suroboyo is a Javanese word derived from Suro and Boyo. Suro (fish), means brave and Boyo (crocodile), means danger. Suroboyo city therefore means Brave in danger.
And that is all about the legend. In Indonesian language Suroboyo is pronounced and spelled Surabaya.
(Novi 2002)

This tale about the legend of Surabaya is still trusted by most of Surabaya's community and forms part of the unique identity of Surabaya' people as a brave and strong community. In 1975 Surabaya's Mayor, Suparno, proclaimed 31 May 1293 as Surabaya's birthday. On this basis Surabaya has just celebrated its 709th year (Petra 2002).

Since the tenth century, East Java province and Bali enjoyed a lucrative trade with the surrounding island (Baliwww 2002). The name Surabaya was known since the tenth century when the Dutch government tried to expand its authority to eastern part of Java Island. By 1743, Surabaya was fully controlled by the Dutch colonizers, but until 1900 development was very slow and the city's main role was as a center for government administration of the wider agricultural region (Petra 2002).

In 1905, Surabaya was established as a *Gementee,* a Dutch term for local administrative area (Handinoto 1999). Since then, the growth of the center was quite rapid particularly to the south of the city, and many new urban settlements were developed (as shown below). Surabaya has continued to grow and is now the second largest city in Indonesia after Jakarta (Petra 2002).

FIGURE 4.1: MAP OF SURABAYA IN 1897 (BEMMELEN & HOOVER 2002)

Since Indonesian independence in 1945, Surabaya has been known as a city of patriots because of the perseverance of its people in defending its independence. From a city whose profile was built on its role as a *gemeente*, it further developed its status as a city following independence and the establishment of independent municipal status (Petra 2002). The independent municipal status focused on Surabaya's identity as a city and facilitated decision-making on local matters (Dick 2002).

Surabaya is connected to the rest of Java Island by an efficient road network, regular train services, and an air service between Surabaya and other major cities in the country including Mataram in Lombok, and Denpasar on Bali, which is only half an hour's flight away.

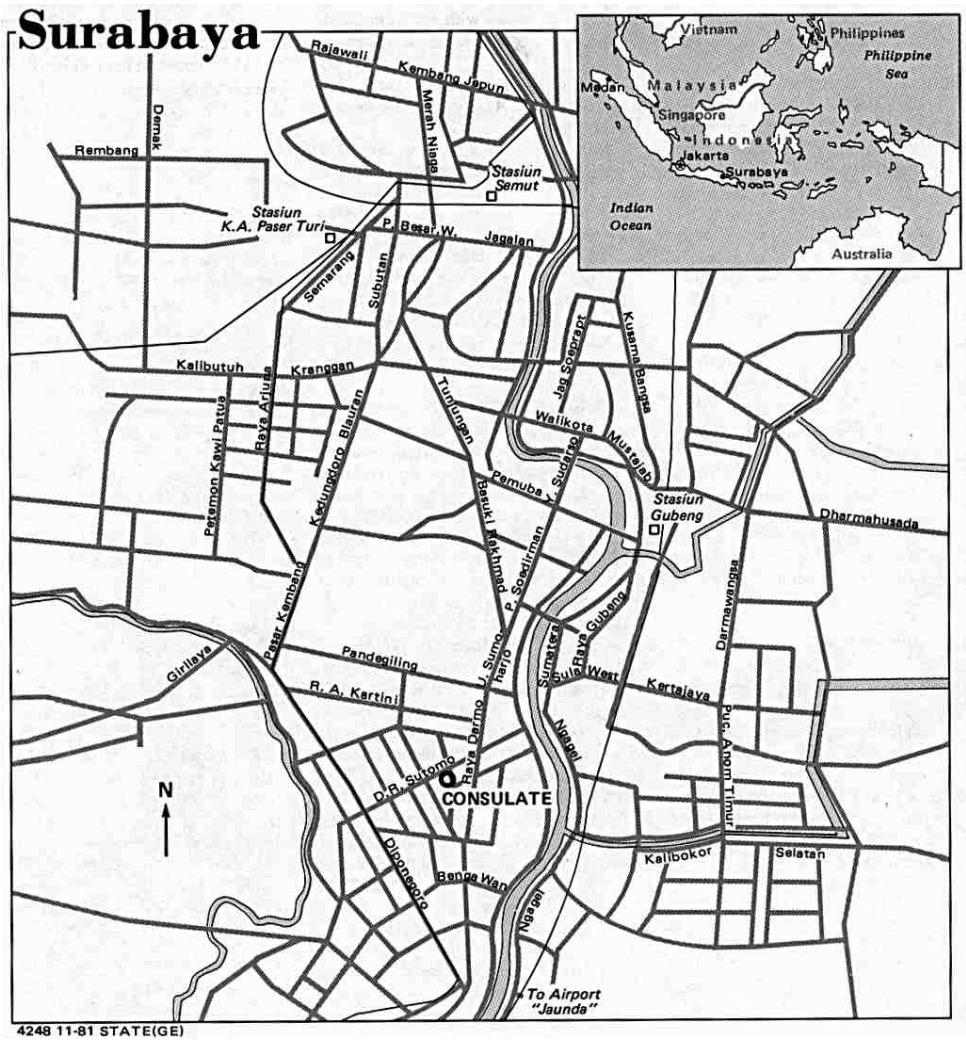


FIGURE 4.2: MAP OF SURABAYA IN 1980S (STATE 2002)

In 1988, the governor of East Java province identified Surabaya as a major gate way to 5 adjacent districts in East Java to network further development opportunities (PEMKOT-SBY 1994). The adjacent districts are: Gresik, Bangkalan, Mojokerto, Surabaya, Sidoarjo, and Lamongan, these districts are known as *GERBANGKERTOSUSILO* (as shown below). This demonstrates the power of Surabaya in its relationship to its hinterland areas, and the influence it exerts in advancing development in these adjacent areas.

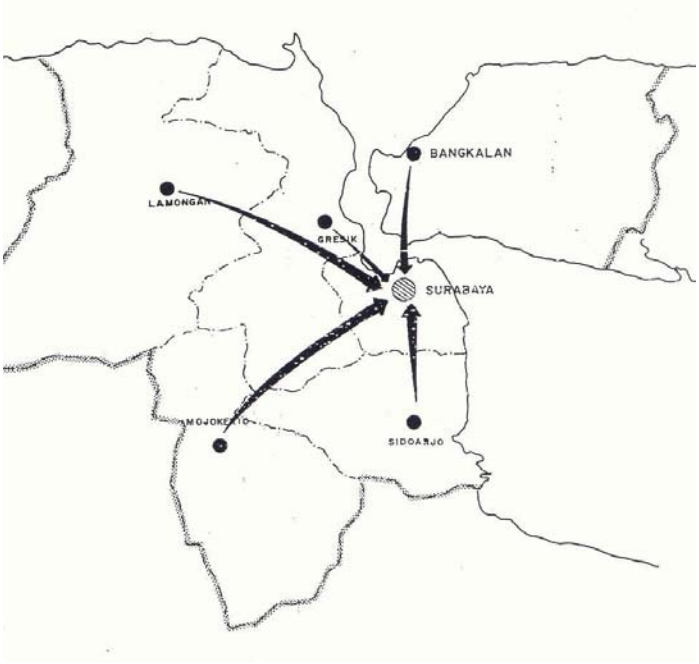


FIGURE 4.3: LOCATION OF GERBANGKERTOSUSILO (PEMKOT-SBY 1994, P. I-7)

The influence of Surabaya' city in East Java province has been growing steadily since the tenth century based on its geographical location, the agricultural wealth of its hinterland area and the pivotal role of its harbor in networking into the global economy. Today the main sector of Surabaya' development is its developing trade and industry sector which has lead to the conferral of its status as the capital of East Java province.

Population profile

The metropolitan region of Surabaya occupies a land area of 32,638.68 ha. In 1990, Surabaya's population increased to 33.99%, of the total population of the 5 adjacent regions. Other region's population ranged between 10% to 16% of the total regional population (PEMKOT-SBY 1994).

Surabaya' population growth during 1971 to 1980 was 2.96% per annum. Between 1980 and 1990 the growth increased almost 2.06% per annum. Before 1971, Surabaya' municipality was comprised of only 11 districts, but after 1971, this was increased to 16 districts to accommodate the demands of urban growth (PEMKOT-SBY 1994).

In the 1980 census, the total population of Surabaya was 2,017,527 people. In the following ten years, the population reached almost 2.6 million people (PEMKOT-SBY 1994). The most dominant cohort of this population is between the ages of 20 to 24 years old, with almost 60% of this total being female (BPS 2000).

More than 80% of Surabaya' residents are Muslim. There are a number traditional Muslim' villages remaining in northern Surabaya, and these are famous for their unique way of life, their traditional buildings, and commitment to Muslim heritage and culture.

Surabaya' residents can be divided into three main groups: urban, marginal, and rural. Further stratification can be developed on the basis economic status: an elite group, a middle income group, and a low income group (PEMKOT-SBY 1994).

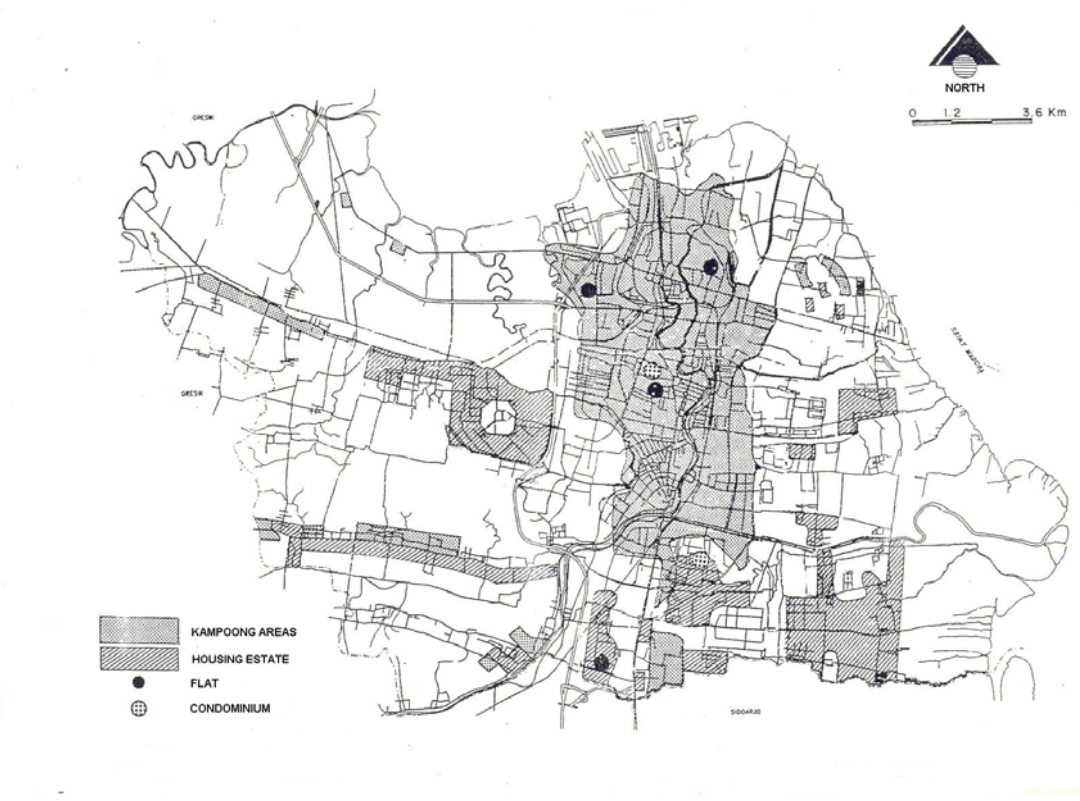


FIGURE 4.4: LOCATION OF RESIDENTIAL AREA IN SURABAYA (PEMKOT-SBY 1994, P. I-38)

The characteristics of the urban communities include; individualism, high mobility and dominant industrial employment base. The marginal population group usually occupies traditional *kampoong* (village) areas. Their way of live is characterized by

social contact, responsibility and solidarity. They still depend on the agricultural and service sector for their income (PEMKOT-SBY 1994). It is this community group that provides Surabaya with a distinct identity. The third group is the rural group, which primarily live in areas surrounding Surabaya. They mainly depend upon the agricultural and fishery sectors for their livelihood and share similar lifestyle characteristics to the marginal group.

The wide range of community types gives Surabaya its unique identity. It also affects the planning and development approach of government where a balance is sought in providing development opportunities for each of the sub groups in the community. Equitable development outcomes are a primary objective of government' policy.

Economic performance

According to *Biro Pusat Statistik-Jakarta* (PEMKOT-SBY 1994), economic growth of the East Java province for the period 1983 to 1993, showed 11.4% growth of the primary sector, 18.66% growth of the secondary sector, and 15.57% growth of the tertiary sector. The average growth was 15.19%. Surabaya municipality contributed almost 45% of East Java's economic growth. Surabaya' economic growth was 8.18% per annum on average over the period 1983 to 1991 (PEMKOT-SBY 1994). Until 1991, the influence of the agricultural sector in Surabaya began to decrease as the industrial and service sector began to dominate the economy (PEMKOT-SBY 1994).

Surabaya's economic activity is categorized into 11 economic sectors, based on UNISIC (United Nations Standard of Industrial Classification of all Economic Activities), which are adjusted to current conditions in Indonesia by the Central Board of Statistics (*Biro Pusat Statistik*):

1. Agricultural sector

   Its contribution to Surabaya' economic growth decreased from 1.62% in 1983 to 1.03% in 1991. The fishery sector is the largest contributor to this sector.

2. Mining sector.

   This sector contributed only 0.09% of economic activity in 1991, and even this figure is in decline following mine closures.

3. Craft and home industry.

   The growth of this sector is almost 17% per annum, and accounted for 19.95% of economic activity in 1991.

4. Electricity, gas, and water.

   This sector accounted for 17.43% of economic activity on average between 1983 and 1991.

5. Construction sector.

   This sector contributed 9% of economic activity in 1991, rising from 6.86% in 1983.

6. Trades, hotels, and restaurants.

   This sector increased from 9.67% in 1983 to 18.82% in 1991. The trade sector in wholesale and retail activity was the major contributor to its growth.

7. Transportation and communication sector
8. Bank and finance
9. House rent
10. Government sector
11. Services sector

    These last five sectors contribute between 15% and 20% to Surabaya' economic growth. This has gradually increased from 1983 to 1991 (PEMKOT-SBY 1994).

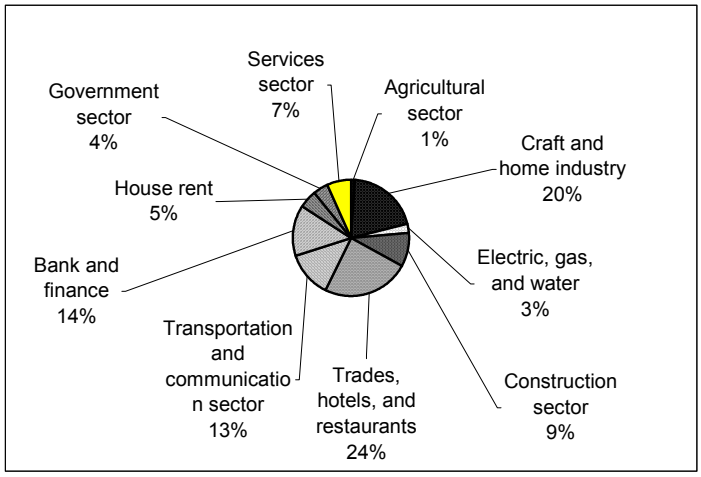


FIGURE 4.5: ECONOMIC SECTOR OF SURABAYA IN 1991 (PEMKOT-SBY 1994)

As explained in the previous section, most of craft and home industry is categorized into the informal sector (see Industrial planning in Surabaya municipality section). The existence of the informal sector is now seen as a threat to the well-ordered market system and also to public order since the economic depression in the late 1990s (Dick 2002). According to Azis (2000), the Asian financial crisis has caused an increase in employment in the informal sector. This has been explained as a response to the financial crisis that lead to a loss of jobs for the urban middle class with many resorting to work in the informal sector (Azis 2000). According to Dick (2002), the increase in the informal sector has also seen the growth of prostitution and small-scale urban public transport. From a government perspective, these increases in the informal sector could undermine market stability, causing prices to become more volatile (Dick 2002).

In summary, the craft and home-based industry sector contributes most significantly to Surabaya' economic growth. This sector is followed by electricity, water, gas, and the trading sectors. These figures clearly show that the development of small-scale industry has made a significant contribution to Surabaya's growth between 1983 and 1991. This has been supported by the growth of services, including the trading sector acting as a main distributor to local and regional markets.

Government intervention

According to the Minister of Home Affairs regulation no. 97/1993 regarding government organization at regional and local levels (PEMKOT-SBY 1994), the hierarchy of government control comprises two levels of coordination: regional and municipal. As explained in the previous section, the East Java province is under the authority of a Governor, while the Surabaya municipality is under the authority of a Mayor.

In terms of the regulation of urban land, government agencies are responsible for the control of urban land use and urban development (PEMKOT-SBY 1994). These agencies include:

1. The City Planning and Development Division (BAPEKKO)
2. The Urban Planning Division (*Dinas Tata Kota*)
3. Development Division:

Public Works Municipal (*Dinas Pekerjaan Umum*), Public Sanitation Municipal (*Dinas Kebersihan*), Park and Gardens Service (*Dinas Pertamanan)*

4. Maintenance and Control Division:
   Inspectorate (*Inspektorat*), Building Licensing and Inspection Office *(Dinas Pengawas Bangunan*), Secretary of Regional Affairs (*Sekwilda)*

The Urban Planning Division is responsible for the planning of the urban area based on an understanding of the city's economic, social, geographical, and political environment. The Development Division applies the plan under supervision of the Maintenance and Control Division. These three divisions are the main agencies responsible for land use control in Surabaya.

Recently, the Indonesian government tried to decentralize its approach to regional development. In this environment the Surabaya municipality is more inclined to concentrate resources on industrial and agricultural development by attracting investors into the area. Issues of clean government and accountable-elections have also created a new atmosphere of responsiveness within government agencies.

Under the new government, the political environment in Indonesia is improving. Every proposed regulation or policy proposed by Surabaya's local government is now open for public comment. Surabaya's community is integrated under the name of *Dewan Kota,* which has the opportunity for input in to government policy; particularly for those policies affecting poor or marginalized sections of the community, which were often neglected under the old regime of the New Order Government.

Government intervention through the planning process is considered to be well structured and efficient. However with the development of *Dewan Kota* the planning approach has been criticized for its inability to accommodate effective participation. However this sort of planning approach is quite new for the Indonesian government.

4.2 BACKGROUND TO SIER

Surabaya Industrial Estate Rungkut (SIER)

In Indonesia, PT SIER (Surabaya Industrial Estate Rungkut company) is the largest industrial estate management company in Indonesia. This company manages three industrial estates in East Java, as follow (SIER 2001):

1. Surabaya Industrial Estate Rungkut (SIER)
   SIER is located in Rungkut sub-district, Surabaya municipality. The estate occupies 246 ha of land, and has 300 factories, which employ almost 50,000 workers.
2. Sidoarjo Industrial Estate Berbek (SIEB)
   SIEB occupies an area of 87 ha, and has 74 factories employing almost 10,000 workers. It is located in the Berbek sub-district, which is close to SIER.
3. Pasuruan Industrial Estate Rembang (PIER)
   This estate is the newest one and comprises an area of 500 ha. PIER is located about 50 km from Surabaya' city centre. It has 50 factories employing almost 75,000 workers.

FIGURE 4.6: LOCATION OF SIER AND PIER (SIER 1990)

The core business of SIER is to (Suprayitno 2002, interview, 14 May):

- Sell land for factory development
- Rent existing warehouse and factory space
- Rent office space
- Provide sporting facilities, a health center, petrol station, mosque, and convention hall
- Provide a WWTP (waste water treatment plant) to serve the area
- Provide transport and construction services.

SIER is located on the southern side of Surabaya. It is about 5 km from the international airport, 19 km from the harbor, and 10 km from the regional railway station (as shown on the picture below).

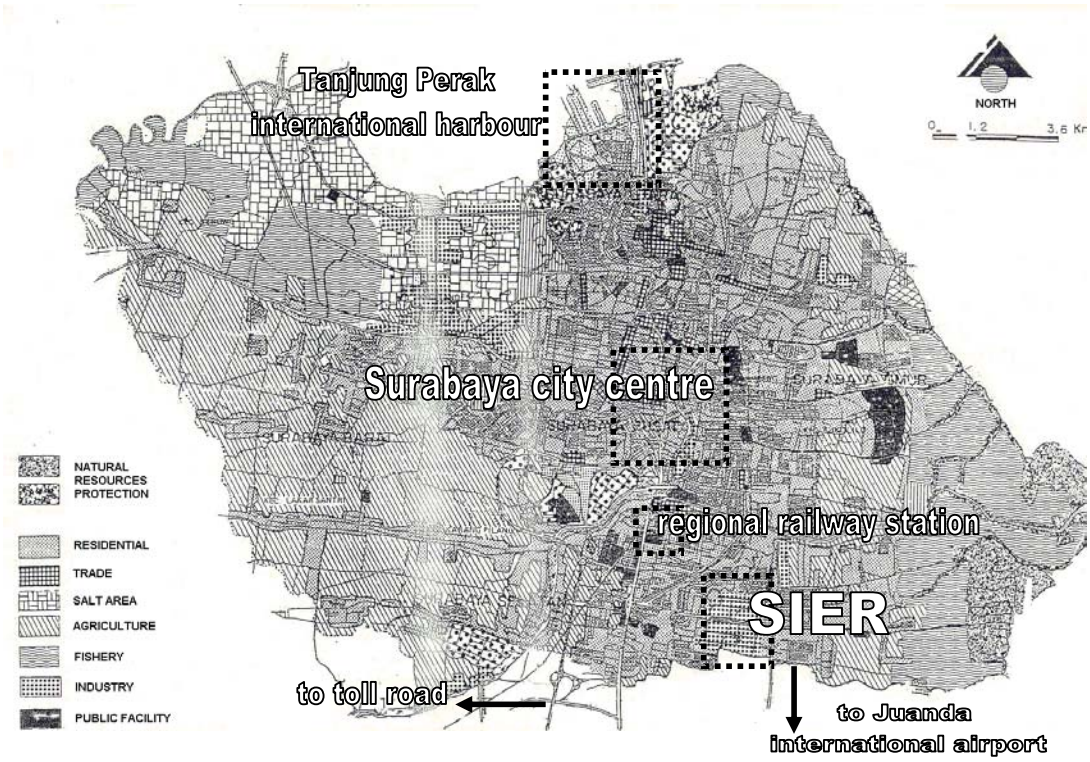


FIGURE 4.7: LOCATION OF SIER TO SURABAYA CONTEXT (PEMKOT-SBY 1994)

SIER was initially developed on 28 February 1974 as a joint venture between:

- The central government (50%)
- The provincial government (25%)
- The local government (25%) (Suprayitno 2002, interview, 14 May).

The management of the industrial estate is fully controlled by PT SIER and the profit is shared, based on the percentage of ownership. This joint venture benefits all

three levels of government and was intended to overcome the shortage of well-serviced industrial land.

The vision for the industrial estate is to become a leader in Indonesia' industrial estate development based on a strong and independent organization. This mission is supported by plan to achieve ISO 14000 as a measure of the estate's concern for the environment (Suprayitno 2002, interview, 14 May). The SIER organization also tries to support the needs of workers by providing cheap foods, organized through food vendors selling their product inside the estate (Prijo 2002, interview, 21 May).

In summary, SIER is a modern industrial estate in Surabaya; it has attempted to attract industries by providing a high level of service, efficient infrastructure, and sound ongoing management. The management focuses on the provision of factory space although it cannot ignore the value of the informal sector in providing goods at an affordable price for its workers.

Characteristics of the industries

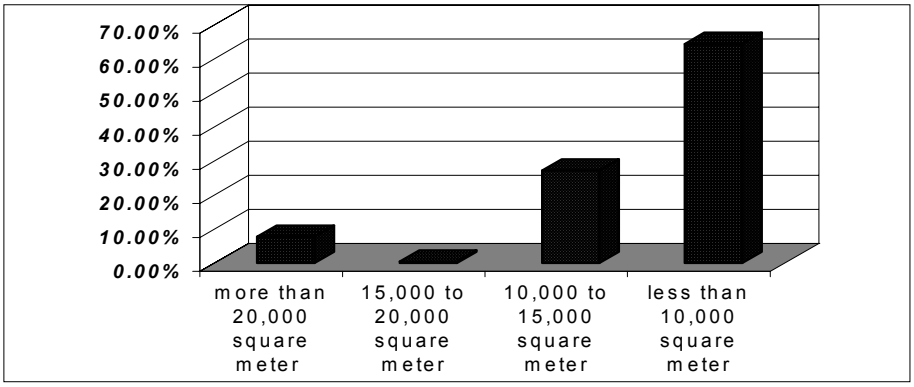


FIGURE 4.8: THE SIZE CATEGORIZATION OF INDUSTRIES IN SIER

(Damayanti 2001) adapted from SIER facts and information 1990

The above table shows that smaller industries occupying a land area of less than 10,000 sq m make up 64.4% of the total number of factories in SIER. This type of factory primarily encompasses large-scale industry and all of the industrial land available in the estate has been sold out since the late 1980s, and is fully occupied.

The types of investor in SIER fall into three categories (SIER 1990):

- Non facility investors : 79%
- Domestic investors : 15%
- Joint-venture investors : 6%

Most of the joint-venture factories are large factories that occupy more than 2 hectares.

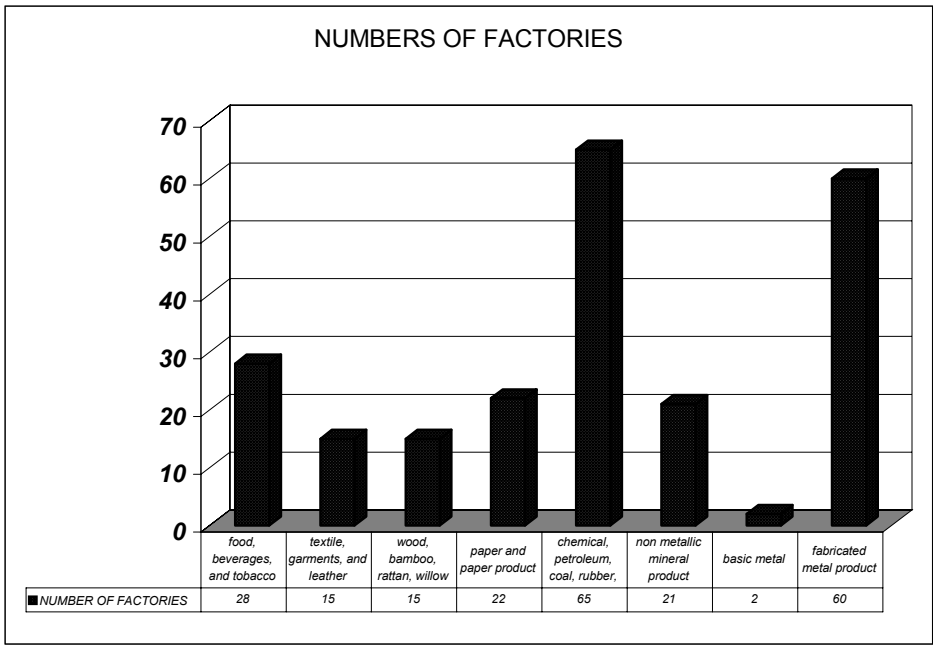


FIGURE 4.9: TYPES AND NUMBER OF FACTORIES IN SIER (DAMAYANTI 2001)

As indicated above, the majority of the factories in SIER are related to the production of chemicals, petrol, coal and rubber (code: ISIC 35). This accounts for 30% of the total number of factories. The second highest number of factories is in fabricated metal products (code: ISIC 38), and the third highest is in the food, beverages, and tobacco sector (code: ISIC 31).

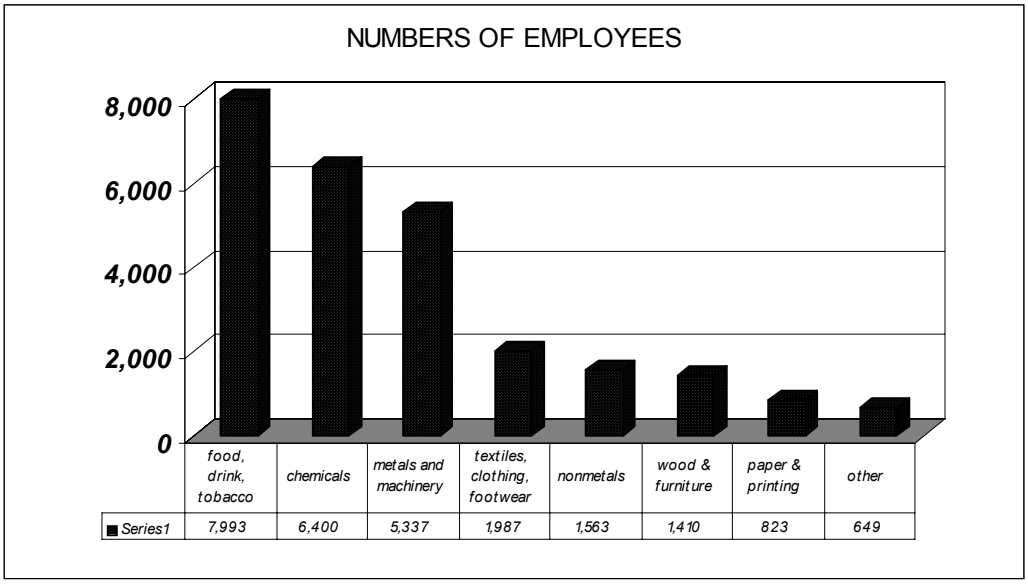


FIGURE 4.10: NUMBERS OF EMPLOYEES IN SIER IN 1985 (DICK 2002, P.307)

The data above shows that the majority of SIER' activities operate out of large factories, that attract a large numbers of workers. Their products are exported to other regions in Indonesia as well as into the global market. The largest sector in terms of employees is food, drink, and tobacco, with over five thousand workers in the *Sampoerna* tobacco factory alone (Dick 2002). Since zoning requirements have restricted the operation of polluting factories, industrial activity in SIER is now dominated by assembly operations (Dick 2002). Dick noted that the largest single subgroup was plastics, an industry that produced a wide range of consumer goods, from household items to toiletries.

4.3 PLANNING PROBLEMS AND OPPORTUNITIES

Based on Surabaya's history, the city developed and grew because of its trading activity along the riverbanks. The Dutch government saw the geographic context of Surabaya as beneficial to the establishment of the town as a trading centre for the spice rich hinterland. Surabaya's development has evolved from these trading traditions that encouraged the development of further small industries based on the

processing of spices and the servicing of ships and other transport. It has been this industrial base that has empowered of Surabaya in the postcolonial era.

Surabaya is a large and rich city, based on its population, its geography, and its industrial activity. A wide-ranging population occupies the city, from the high-income elite groups to lower income, marginalized new migrant groups. Geographical conditions vary from agricultural land, salt land, to beaches. The industrial activity ranges from traditional craft industry to modern factory production based operating out of two modern industrial estates.

The richness of Surabaya should benefit its future development. However, an enduring problem is the government's failure to create equitable development outcomes. Since Indonesia's regional development focuses on decentralized development, the regional and local governments have concentrated on attracting further investment, particularly in industrial activity.

PT SIER is a modern industrial estate fully supported by the government as a leader in advanced and modern industrial development. This is its main attraction to potential investors. SIER is the largest and the most modern industrial estate in East Java province. The estate has been developing for almost 30 years and has been very influential in shaping the city. The growth of the city on its southern side has been more rapid in response to the attraction of industrial employment. The benefit of the industrial estate affects all levels of the growing community surrounding the estate.

Urban development and planning in Surabaya is highly dependent on current political issues. By contrast, national government's planning, regulation, and policy development primarily focus on only one part of the community: the investors and factory owners. This condition has been affected by the political environment of the New Order government that was known for its ineffective governance. The current elected party has more concern for equity in development outcomes, which will require new approaches to the future planning of Surabaya.

4.4 SUMMARY

This chapter has explained the background to Surabaya and the SIER industrial estate. The history of Surabaya shows the role of Surabaya's port in creating a network to the global market for its agricultural hinterland. This growth has been maintained and the city is now the second largest in Indonesia after Jakarta. Two point six million people live in Surabaya occupying a land area of 32,638.68 ha. The people of Surabaya comprise three different socio-economic groups: urban, marginal, and rural communities. These three groups have their unique characteristics.

The current economic profile of Surabaya shows that the agricultural sector has decreased whereas the industrial and service sectors have been increasing since 1991. The craft and home-based industry sector contributes most significantly to economic growth followed by the service sector.

Government intervention in development can be seen in the evolution of a planning hierarchy, from the City Planning and Development Division down to the Maintenance and Control Division. Recently, the encouragement of decentralized and accountable provincial government have created the potential for new approaches to community responsiveness from within government agencies.

SIER is a modern industrial estate run by the largest industrial estate management company in Indonesia. It has attempted to attract industries by providing a high level of service, efficient infrastructure, and sound ongoing management. This industrial estate is mostly occupied by firms producing of chemicals, petrol, coal products, and rubber. Their products are exported to other regions in Indonesia as well as into the global market place.

The emerging planning problem for the government is clearly seen in the need to incorporate equity considerations into the planning process. The provincial and local government must confront the tension between the needs of the Surabaya' people and the priority of economic independence. Currently, the government's planning, regulation, and policy development primarily focus on facilitating the needs of only one section of the community: the investors in the formal industrial sector.

5.0 SURABAYA INDUSTRIAL ESTATE RUNGKUT (SIER) CASE STUDY

The previous chapter explained the background to Surabaya and the characteristics of the case study, based on its history, economy, and social background. The chapter highlighted the role of Surabaya in creating networks into the global market based initially on the agricultural wealth drawn from its hinterland. It also identified the recent decline of the agricultural sector and the concomitant growth of the industrial and service sector with craft and home-based industry making a significant contribution to economic growth.

This section will describe the existing conditions in the SIER industrial area and the areas surrounding this industrial estate. The SIER industrial estate has had a profound impact on land use characteristics in the surrounding areas. In addition, the pattern of formal and informal commercial activity in surrounding areas will identify the link between land use and population change. This chapter will also explain the interdependency of the formal sector and the informal sector; characterized by street vendor and home-based enterprises. This interdependency has developed through the linkages between the SIER industrial activity and the residents of the surrounding areas.

The content of this chapter will address the research questions regarding the pattern of land use change in areas surrounding SIER, the nature of linkages between the formal and informal sector, and the costs and benefits of their operation to the local economy community and environment.

This chapter is divided into four parts. The parts are: methodology, existing conditions in the case study area, including characteristics of the area and existing land use; the nature of commercial activity on the three major roads; and the networks between the formal sector, the informal sector, and the community.

5.1 METHODOLOGY

Introduction

This section is divided into three major parts; research design, data collection, and data analysis. Research design will help to create a logic and frame a valid data collection process in examining the research hypotheses (Bernard 2000). The research design mainly explains the context of the research, including case study area and sampling. Data collection is how the researcher gaining data from the sample and the case study, both qualitatively and quantitatively (Bernard 2000). Data analysis will describe how the data gathered were analyzed and presented.

These three parts are research strategies to address the objective of this research. The research strategy is derived from research elements, such as research context setting, and situated activity (Layder 1993).

Research design

Case study area

According to Kitchin and Tate (2000), a case study approach can use both qualitative and quantitative methods. This study is qualitative in nature, but quantitative in practice since it has used secondary data, such as statistics relating to the phenomenon under study. According to Bechhofer & Paterson (2000), a case study may be seen as representative of a broader population and generate insights that may assist in the development of general theory. This research has used a case study approach as being representative of more general land use change in Surabaya and in Indonesia. The case study analysis will generate insights into land use change in Indonesia, and other less developed countries. This research focuses on the areas surrounding the SIER industrial estate as the case study.

In order to gain data about commercial activity, the case study area is focused on land that has high accessibility to the city and the industrial estate. It is commonly known that commercial activity has a high dependency on accessibility (Balchin, Isaac & Chen 2000). The case study for the commercial sector is located along

three major roads in the vicinity of the SIER industrial estate, referred to Rungkut Industri Raya Street, Rungkut Tengah Street, and Katamso Street. These streets have been selected because of their role in accessing the SIER industrial estate and their proximity to other significant land uses, such as the airport, housing estates and arterial roads. These streets and the residents of surrounding areas are impacted upon by the activity of SIER. As shown in figure 5.2, the length of Rungkut Industri Raya Street is 4.3 km, Rungkut Tengah Street is 2.1 km, and Katamso Street is 4.5 km.

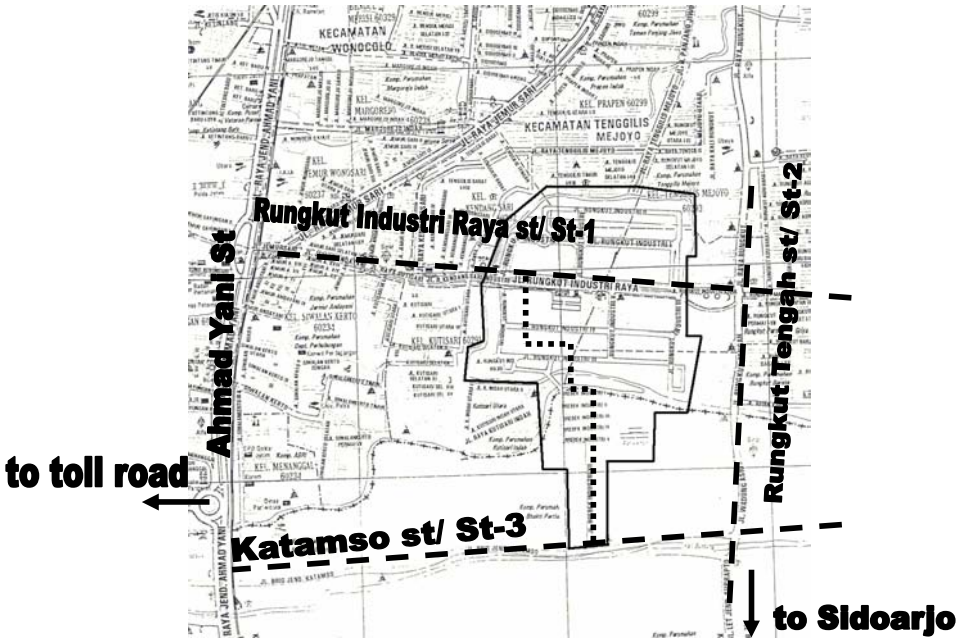


FIGURE 5.1: DIAGRAM OF THE THREE MAJOR ROADS OF SIER

To make the identification and presentation of these roads simpler they will be referred to as follows (see figure 5.1):

- Rungkut Industri Raya Street is street-1
- Rungkut Tengah Street is street-2
- Katamso Street is street-3

To gain data from the residents surrounding SIER used a sample of residents who lived in the housing estates were interviewed. The location of the residential estates can be seen on the figure 5.2 below. The boundary shown is based on the hypothesis that the impact of the industrial activity of SIER will increase the closer the location is to the industrial estate. Inside the boundary the respondents were

classified into 5 sub-areas: Kendangsari, Tenggilis Mejoyo, Rungkut Menanggal, East Sidoarjo, West Sidoarjo, and Kutisari.

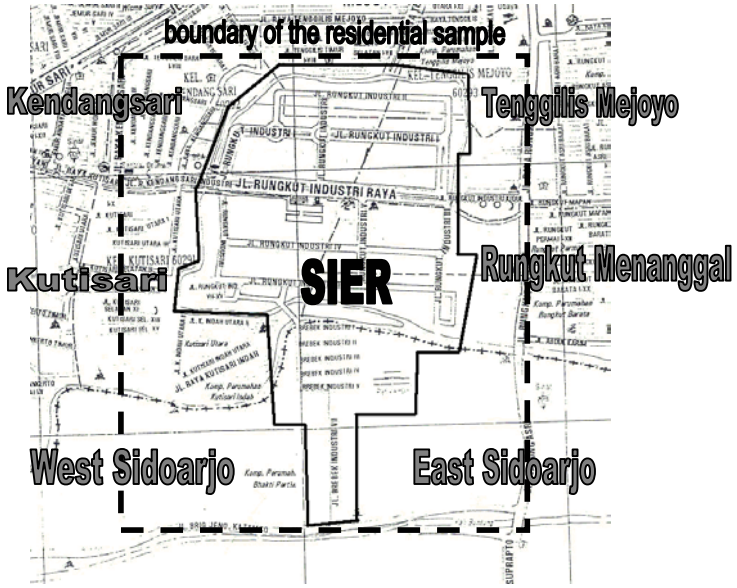


FIGURE 5.2: BOUNDARY OF THE RESIDENTIAL SAMPLE

Sampling

According to Bernard (2000), a sampling frame to identify units of analysis from which to draw a sample. In this research, the frame is based on statistical data on the case study area that represents the populations under study. The statistical data is a secondary source of data and this was sourced from a government agency in Surabaya: the Surabaya City Central Board of Statistics. In order to address the objective of this research, a stratified random was chosen as a sampling method. According to Kitchin & Tate (2000), this method divides the population into sub-groups, which are then each sampled using a simple random method. Practically, this method ensures that key subpopulations are included in the sample.

According to Bechhofer & Paterson (2000), degrees of error are within acceptable parameters providing a sample of one in twenty is consistently maintained. This research has adopted a more secure sample of ten percent of the resident population in areas immediately surrounding SIER and ten percent of commercial activity along the three major roads as a sample representative.

Based on the land use survey, the total number of commercial activities in the three streets was approximately 850 enterprises operating during the day and night. The sample used targeted 85 respondents representing 10% of the total number. The size of the sample area of residential in areas immediate SIER is 21.8 sq km. This area is occupied by 1080 households. The sample size developed was 10% of the number of households: approximately 100 households.

Data collection

This research undertook three types of data collection: a land use survey, a questionnaire, and a range of interviews. The land use survey was conducted because no data on the numbers of commercial activity in the case study area existed. Data from the questionnaire is used as the main data base to examine the hypotheses. The interviews were undertaken to examine the planning background to the case study area.

Land use survey

The land use analysis was used to accurately identify the short-term dynamics of land use change. The analysis counted numbers of informal and formal commercial activities, which have developed along the three major streets of SIER. The activities surveyed included both commercial and industrial activity, street vendors, and home based enterprises. The range and type of activities surrounding SIER were defined by classifying each activity according to its size (large, medium, or small), permanence (transient or permanent), and time of operation (daytime or night-time activity). The survey identified the characteristics of the formal and informal activities in the area and began to identify the interaction between those activities and activities within the formal industrial estate.

Questionnaire

Questionnaires were distributed to the proprietors of the commercial sector and residents in the area surrounding SIER. The commercial sector questionnaire was distributed to a sample of informal activities, based on the findings of the land use analysis. Respondents covered all types of commercial activity, from small transient stalls that occupy pedestrian space to larger commercial premises. The questions

identified the characteristics of the networks between, and impact of, the formal and informal sectors. The questionnaire also identified the division between home based and stand-alone enterprises. The questions were carefully drafted to accommodate traditional beliefs, customs and values. Both questionnaires consisted mainly of closed questions to accommodate subsequent quantitative analysis (see appendix 1 to 4).

Interviews

Interviews are an important technique to gain data on decision-making perspectives affecting land use change (see objective 3 and 4 in chapter 1). The interviews were with regional planners, local planners, the industrial estate manager, informal sector proprietors, and researchers studying related topics. There are 8 interviews are held. The case study industrial estate is controlled by regional government. Local land use regulation is controlled by local government. The industrial estate management focuses on selling and managing the estate. These stakeholders revealed information, attitudes and opinions on both official policy and actual development outcomes. These interviews use unstructured and semi structured approaches. The unstructured interviewing is based on clear plan in mind and characterized by a minimum of control over the respondent's responses (Bernard 2000). This type of interview was particularly useful in addressing informal sector proprietors and researchers, because of the opportunity provided to express their views and opinions in their own terms. The semi structured interviewing needs a written list of questions and topics that need to be covered in a particular order (Bernard 2000). These interviews with bureaucrats and managers were more structured to ensure the best possible response in the limited time they were prepared to allocate to the interview process.

Procedure

The land use survey and questionnaire were undertaken by 2 survey assistants and 1 supervisor. The interviews were conducted by the researcher. A short training session was provided to the survey assistants to explain the study and the various matters likely to be raised by the respondents. Before starting the data collection process, permission was sought and gained from government at the municipal, local and neighborhood level.

The land use survey was completed in six days, covering both daytime and night time commercial activity. While documenting counting the commercial activity, the survey assistants also took photographs of the operation to identify building condition and their impact on the broader street. In addition, the surveyors noted in two categories: building size and transience. The size of the operation was classified into three sub-categories, more than 50 sq ms, between 5 to 50 sq ms, and less than 4 sq ms. Four sq ms is the standard size of carts for street vendors, and 50 sq ms is the standard size for retail space. Transience required classification into two sub-categories: fixed and non-fixed.

The questionnaires to residents and commercial operators were completed over a six-week period. The questionnaire to commercial operators covered a random sample of operators in the three case study streets. The questionnaire to residents was divided into 5 sub-areas based on existing neighborhood units.

Interviews with 8 respondents were undertaken over a four-week period. The researcher discussed previously identified topics with the respondent while noting responses. These were later translated and transcribed in a 'Hansard' form for ease of comprehensive (see Appendix 5).

Data analysis

According to Bernard (2000), data analysis is the search for patterns in data and to help explain why those patterns have emerged. The data obtained from the questionnaire were processed on a personal computer with SPSS™ and Excel software. For quantitative data, a coding process was carried out before entering the data into the SPSS™ program. The data was then presented using the Excel program. For the qualitative data gained from interviews or government documents the material was transcribed into personal computer using the Endnote program.

5.3 LOCATION

The case study used in this research is the area surrounding the SIER industrial estate. The estate is controlled by two local governments, Surabaya municipality

and the Sidoarjo district. The case study area is located on the boundary between these two districts; the northern side is in Surabaya and southern side in Sidoarjo.

In the Surabaya municipality, the northern side of SIER industrial estate forms part of the Tenggilis Mejoyo sub-district, and the southern side forms part of the Rungkut sub-district. These sub-districts can be further divided into 4 village level administration sub-districts (*kelurahan*); Kendang Sari, Tenggilis Mejoyo, Kutisari, and Rungkut Menanggal (as shown in figure 5.3 below).

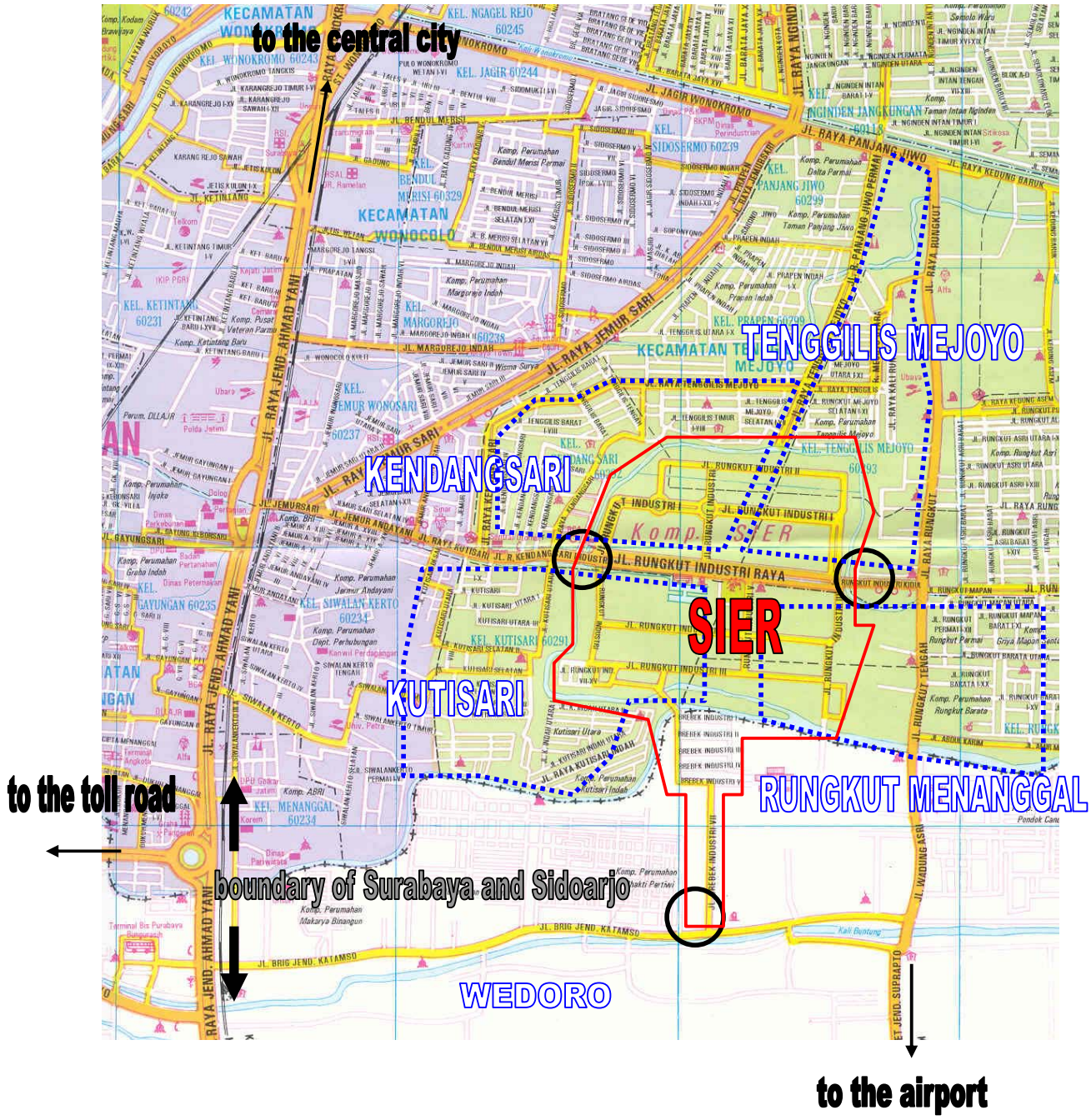


FIGURE 5.3: THE LOCATION OF SIER AND SURROUNDING *KELURAHAN* (SWAJAYA 2000)

The main entrance into SIER is in Rungkut Industri Raya Street, and the secondary entrance is to the south along Katamso Street. Along Rungkut Industri Raya Street, the estate is linked to the surrounding area by its main gates on the eastern and western side of the estate (see figure 5.3).

The topography of the area is similar to other areas in Surabaya with elevation around 10 m above sea level (PEMKOT-SBY 1994). Central, north, and east Surabaya is mainly at level 0 to 10 m above sea level, but some sections, particularly the salt zone, are below sea level. West and south Surabaya is at level 0 to 20 m above sea level. The geologic features of this area are mostly alluvial formations comprised of clay, silt, sand, gravel, or similar detrital material deposited by running water (PEMKOT-SBY 1994).

5.4 CHARACTERISTICS OF THE AREA

This section will explain the characteristics of the case study, concentrating on its infrastructure, population, and planning controls.

Transport infrastructure

The estate is divided into two parts by a secondary arterial road, Rungkut Industri Raya Street along the northern and southern side. This road is connected to a toll road by a primary arterial road, Ahmad Yani road. Katamso Street (Street-3) on the south also connects the estate to Ahmad Yani Street, and functions as a secondary collector street. Katamso Street (Street-3) and Rungkut Industri Raya Street (Street-1) are parallel and are connected by Rungkut Tengah Street (Street-2) to the east and Ahmad Yani Street to the west. Rungkut Tengah Street (Street-2) is a secondary collector road.

According to Indonesian road categorization (PEMKOT-SBY 1994), primary arterial roads are designed to connect centres of regional growth. For example Ahmad Yani Street connects Surabaya' centre to other cities in East Java province. Secondary arterial roads connect centres of regional growth to centres of urban growth. For example Street-1 connects Surabaya' centre to the industrial estate. Secondary

collector roads connect urban growth centres; Street-2 and Street-3 would fall into this category.

In between Street-1 and Street-3 is the location of the SIER industrial estate, and both streets are also connected by an internal road of the estate. This internal road is open for public use and provides public transport access as well as functioning as a second entrance from the south.

In a regional context, Street-3 also functions as a short cut to Sidoarjo district, where an international airport and many residential estates are located. Before and after working hours this street is quite busy, because many of the workers homes are in south Surabaya towards the Sidoarjo district. The main function of Street-1 is to transport people from the central city to the toll road or Sidoarjo district. The factories in SIER use Street-1 as a main road to reach the toll road to deliver their products to other cities in East Java province. Street-3 has a similar function to Street-1 in terms of its connection to Surabaya city centre. Another significant function of this street is to access the regional bus station on the western side of Surabaya. SIER factories also use this street as the main access route for raw materials entering the estate.

In summary, SIER industrial estate is surrounded by three busy streets, each having a significant function to connect the estate to Surabaya city centre and other parts of East Java province.

Population and living conditions

Like the population of Surabaya, the resident population surrounding SIER is also heterogenous, ranging from middle-income groups to marginal people. The middle-income group usually live on housing estates that are relatively large and spread around the south and east of SIER. Most of these residents work in central Surabaya. The employment base for marginal groups is more dependent on the agricultural and informal sectors. This group usually lives close to the boundaries of the Surabaya municipality (see figure below).

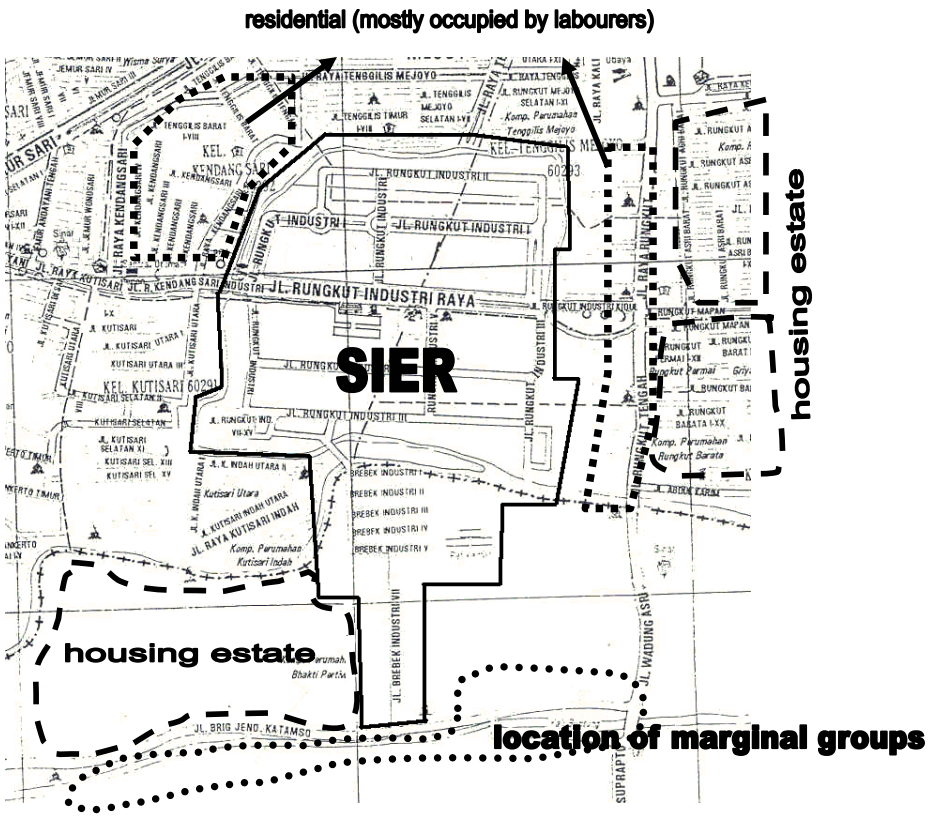


FIGURE 5.4: DIAGRAM OF RESIDENTIAL LOCATION SURROUNDING SIER

In between Street-2 and the SIER industrial estate and west of SIER is the main location of housing for industrial workers in various types of accommodation. These areas have not been subject to comprehensive planning and design. Rather this former agricultural area has become an informal living area for SIER labourers and old farmer's houses have becoming rental homes and dormitories (Lilananda 1993).

According to Sigit (2002, interview, 14 May), the majority of the marginal people in this area between Street-2 and SIER derive their income from renting houses and rooms. Sigit also notes that the living conditions of labourers; such as shared and communal facilities reflect the traditions and standards of the source community of these economic migrants.

Further East of this area, is the location of housing estates that have been comprehensively planned and designed and provide community services, such as markets, health centers, and open space. These estates have been marketed to middle-income people with high dependency on the other economic sectors of Surabaya.

Because areas surrounding the SIER industrial estate belong to three different sub districts: Tenggilis Mejoyo, Rungkut, and Wedoro (Sidoarjo), there is no precise record of population numbers and growth in the area. It can be assumed, based on the population density of Tenggilis Mejoyo and Rungkut, that densities of 200 people per hectare are being achieved (Surabaya-Pemda 1991a). Such figures would be considered low-density residential in this particular urban context.

Local government sees the need to limit population growth surrounding the SIER industrial estate, since the area is facing growing population pressures from natural growth and urban in-migration (Surabaya-Pemda 1991a). It can be assumed that the population density in the area surrounding SIER is above the density of planned residential areas. According to Lilananda (1993), the majority of the migrants live in a 6 sq m bed room occupied by at least four people.

In summary, the area immediately surrounding SIER is mostly occupied by workers' but further away from the industrial area city center workers come to predominate the population profile.

Zoning/ plan characteristics

According to Tenggilis Mejoyo master plan for 2010, areas surrounding SIER are identified for residential purposes. As shown in figure 5.5 below The areas adjacent to the three major roads are also allocated for residential use (Surabaya-Pemda 1991a). Commercial and public service areas are allocated at the intersection area of Street-1 and Raya Kendangsari Street. This area is known as the center of the urban unit of Tenggilis Mejoyo sub-district. The center of the SIER industrial estate has been allocated as the center of the district unit. The area between SIER and Street-2 is allocated as the center of the neighbourhood unit.

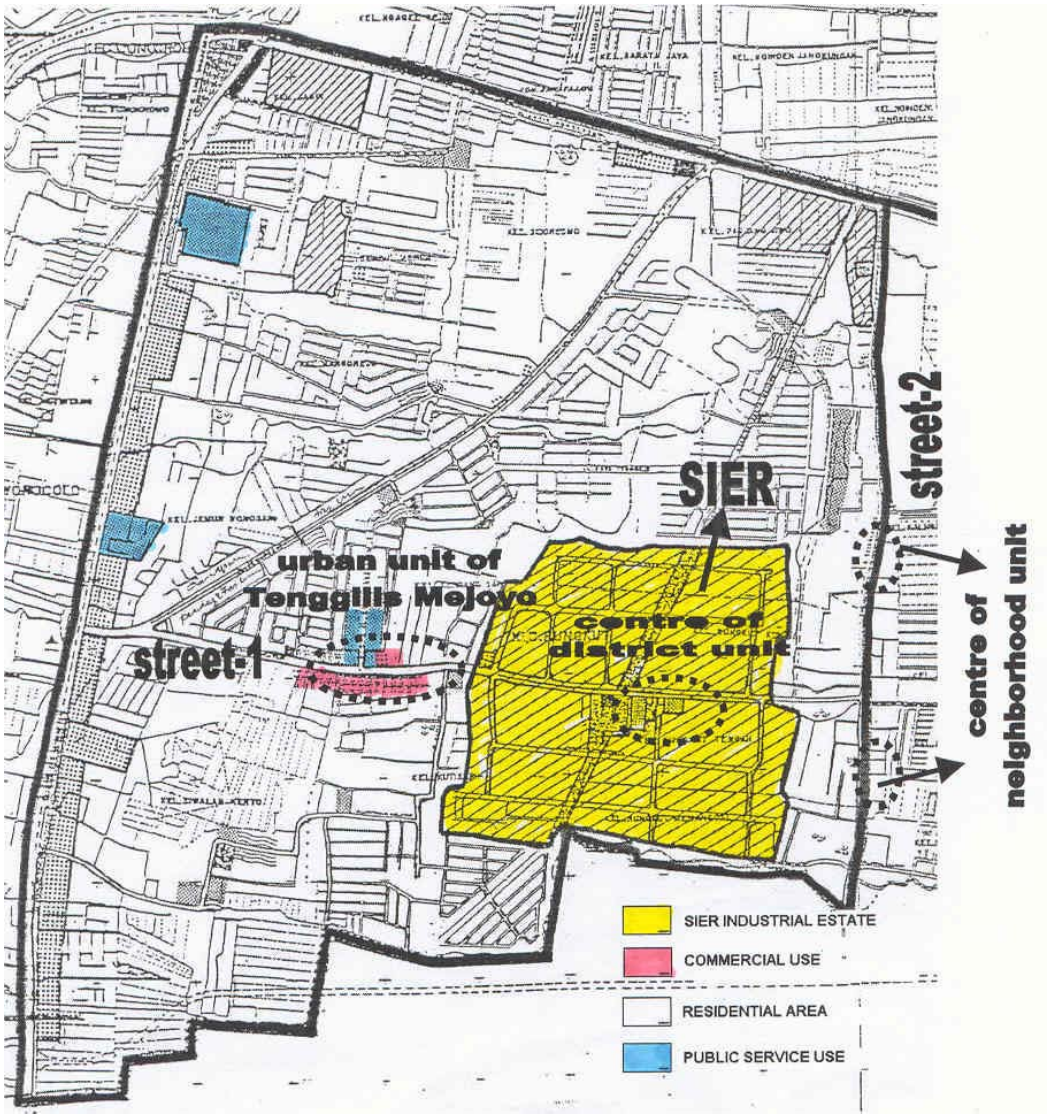


FIGURE 5.5: LAND USE ZONE OF TENGGILIS MEJOYO SUB-DISTRICTS (SURABAYA-PEMDA 1991A, P. IV-9)

Urban planning in Surabaya seeks to establish a hierarchy of urban centres to provide service to residents at all levels of community identity. These have been identified as: community units, neighborhood units, district units, urban units, and the sub city center. The areas surrounding SIER are serviced by an urban unit located on Street-1. This unit includes a post office, public telecommunication office, a shopping mall, and many private offices and services. Two neighborhood units near SIER are located inside the informal residential areas and include a multifunction building for community activities (such as neighborhood meetings), and a temporary infant health service.

In the 2010 Master Plan (currently being prepared), Street-3, which currently functions as secondary collector road, will be re-categorized as a secondary arterial road. There will also be an additional three intersections along Street-1. In analysing the plan for Tenggilis Mejoyo 2010, the local government identified several current problems in this area that need to be addressed in the 2010 Master Plan (Surabaya-Pemda 1991a). The problems are outlined below:

1. Lack of public transportation services
   This condition is due to a lack of capacity on the streets to accommodate current levels of traffic use, particularly at the intersection of Street-1 and Street-2, Street-1 and SIER west main entrance, and Ahmad Yani Street and Street-1. The congestion is derived from commercial activity, particularly at night, and bus terminal activity, which attracts crowds waiting for public transport.
2. Lack of utility services
   There are drainage problems in the area with flooding occurring regularly on Street-1. In addition, there is a lack of telephone service capacity in the area.
3. Lack of green space
   Currently there is air pollution from the SIER industrial estate which impacts on the surrounding area. It is suggested that this be addressed by providing an open space buffer around the estate.
4. Lack of services
   Even though the local government tries to serve the community through an urban development service hierarchy, current conditions show an inconsistent level of service provision due the rapid and uncontrolled development of informal residential areas.

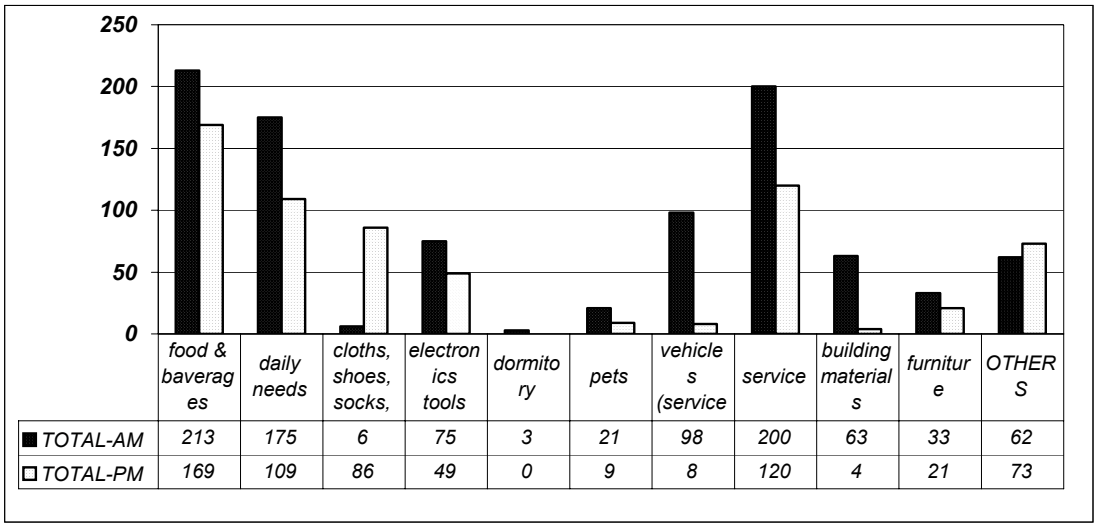
In terms of urban land use, the local government further identified three more general, long-term problems in the area surrounding SIER. Firstly, at the intersection of Street-1 and Street-2, and extending along Street-2, there is rapid growth of unregulated commercial activity in a low quality environment (Surabaya-Pemda 1991a). Secondly, the location of manufacturing activity in SIER has degraded the environment, particularly through air pollution. Thirdly, there has been a shift of the urban unit centre in Street-1, from near SIER to near Raya Kendangsari Street. These three problems were identified by local government in 1991/1992 as a rationale for 2010 Master Plan.

5.5 EXISTING LAND USE

To formally identify existing land use of the area surrounding SIER, particularly on the three major roads; a land use survey was undertaken. This survey identified commercial activities during the daytime and night time, and including both the formal and informal sectors. The commercial activity was further categorized according to size and physical condition.

Land use characteristics

Figure 5.9 below shows the characteristics of commercial activity on the three major roads. The activity is quite varied, from the production of goods to the provision of services. These activities spread along the three roads and there is no agglomeration of particular types of commercial activity. Almost 10% of land uses are categorized into the 'other' classification, which includes selling paper and plastics, optometrist and spectacle service, mineral water refill, and the sale of mobile phone cards. These uses are indicative of the wide variety of commercial activity that takes place in the case study area.



	food & baverages	daily needs	cloths, shoes, socks,	electronics tools	dormitory	pets	vehicles (service	service	building materials	furniture	OTHERS
TOTAL-AM	213	175	6	75	3	21	98	200	63	33	62
TOTAL-PM	169	109	86	49	0	9	8	120	4	21	73

FIGURE 5.9: TYPE OF COMMERCIAL ACTIVITY AT DAYTIME AND NIGHT-TIME

It can be seen that food and beverages, service provision, and the sale daily needs are the three most frequent types of activity on the three roads. Each category may

also include both the production and sale of a product. The service provision category includes such activities water pump servicing, short course or extra-curricular education, and illegal VCD sellers.

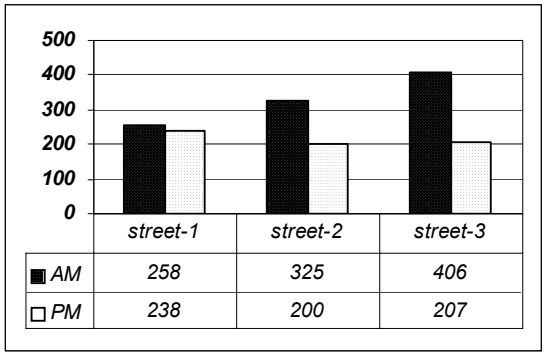


FIGURE 5.10: NUMBERS OF TOTAL COMMERCIAL ACTIVITIES ON THE THREE MAJOR ROADS (DAY AND NIGHTTIME)

As seen on figure 5.10 above, daytime commercial activity on the three streets was more extensive than at nighttime. The difference was of the order of 35%. During the daytime, the commercial activity on Street-3 is more extensive than on the other street. Street-1 has the lowest number of commercial activities.

The figure 5.11 below isolates the numbers of the small-scale commercial activities. This table identifies commercial activities that occupy buildings of less than 4 sq ms (street vendors), and transient buildings. The data for Street-1 shows that the number of commercial uses that occupy buildings less than 4 sq ms is similar to the number of non-permanent buildings. In the data for Street-2 and Street-3, the number of uses occupying buildings less than 4 sq ms is almost three times the number that occupy non-permanent buildings.

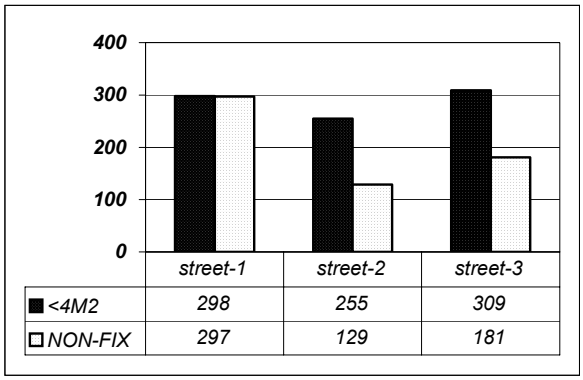


FIGURE 5.11: COMMERCIAL ACTIVITIES ON THE THREE MAJOR ROADS (LESS THAN 4 SQ MS AND TRANSIENT BUILDING OCCUPATION)

Comparing the size and physical condition of commercial land uses along the three major roads, it can be seen that Street-1 is dominated by smaller, transient commercial premises during the night time (as shown on figure 5.12 and 5.13 below).

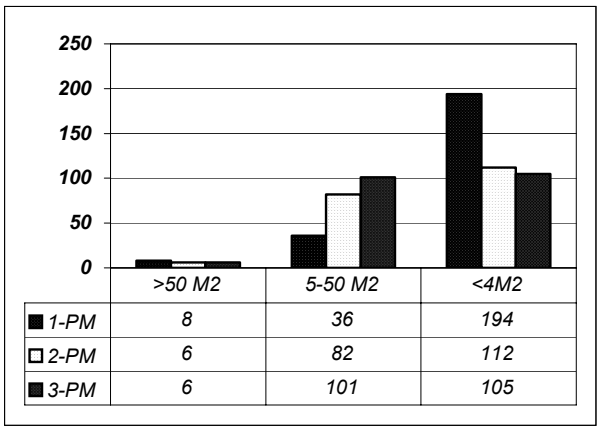


FIGURE 5.12: COMMERCIAL ACTIVITIES ON THE THREE MAJOR ROADS DURING NIGHT TIME BASED ON SIZE

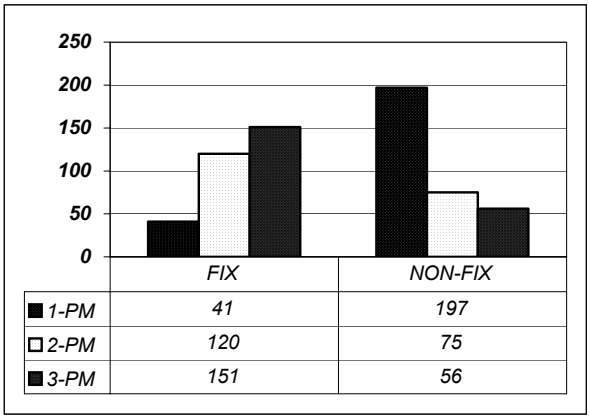


FIGURE 5.13: COMMERCIAL ACTIVITIES ON THE THREE MAJOR ROADS DURING NIGHT TIME BASED ON PHYSICAL CONDITION

During the daytime, commercial activity on the three major roads primarily takes place in permanent buildings (as shown on figure 5.14 and 5.15 below). On Street-2 and Street-3 during the daytime commercial buildings of less than 4 sq ms dominate the distribution. On Street-1, commercial buildings from 5 to 50 sq ms are the dominant category.

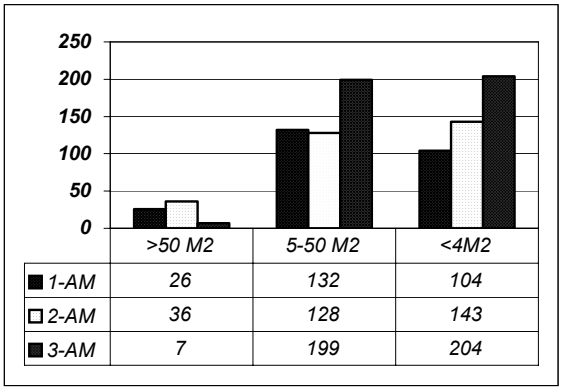
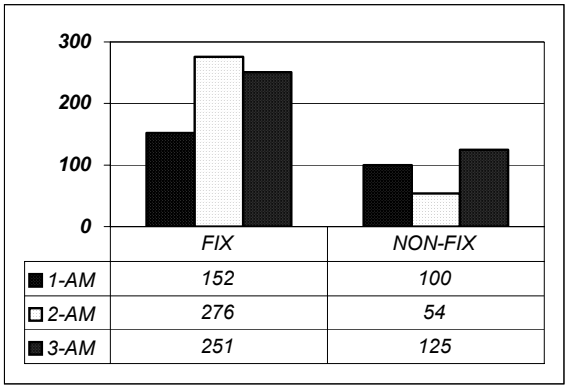


FIGURE 5.14: COMMERCIAL ACTIVITIES ON THE THREE MAJOR ROADS DURING DAYTIME BASED ON SIZE

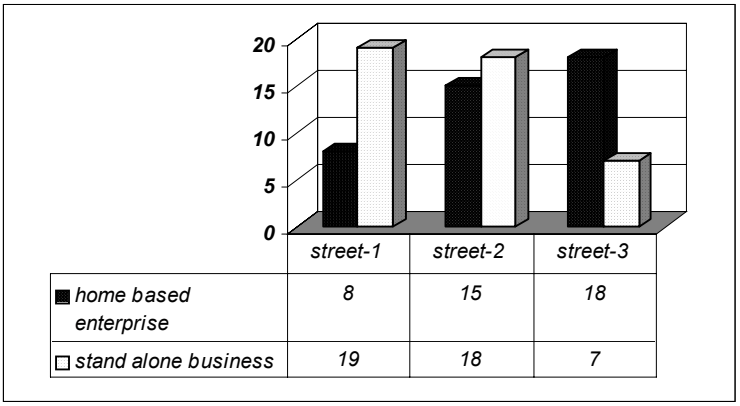


	FIX	NON-FIX
1-AM	152	100
2-AM	276	54
3-AM	251	125

FIGURE 5.15: COMMERCIAL ACTIVITIES ON THE THREE MAJOR ROADS DURING DAYTIME BASED ON PHYSICAL CONDITION

In summary, commercial activity on the three major roads is quite varied, in terms of size, building condition, and type of business activity. There are significant differences between Street-1 and Street-2 and 3. During the night time, commercial activity along Street-1 is dominated by small scale commercial activity, which is transient, temporary, and incorporates most of the street vendors. Street-2 and 3, during night time and daytime shows a similar number of commercial activities both permanent and transient.

The majority of commercial premises during the daytime on Street-1 are stand-alone businesses. Street-2 has similar numbers of stand-alone business and home-based enterprises. Street-3 is mainly occupied by home-based enterprise (as shown in figure 5.16 below). Street-1 is dominated by commercial land use while Street-2 and Street-3 are characterized by mixed commercial and residential land use.



	street-1	street-2	street-3
home based enterprise	8	15	18
stand alone business	19	18	7

FIGURE 5.16: COMMERCIAL ACTIVITIES ON THE THREE MAJOR ROADS BASED ON TYPES OF BUSINESS ACTIVITY

Land use analysis

Compared to the plan of Tenggilis Mejoyo 2010, which was adopted in the 1992, there are many inconsistencies between the current and proposed land use occupation (as seen on the figure 5.17 below). The areas surrounding SIER are in turn, surrounded by residential areas with a variety of housing types and condition. Closer to the estate the housing is denser, and incorporates commercial activities, small-scale business activity, home-based enterprise and manufacturing.

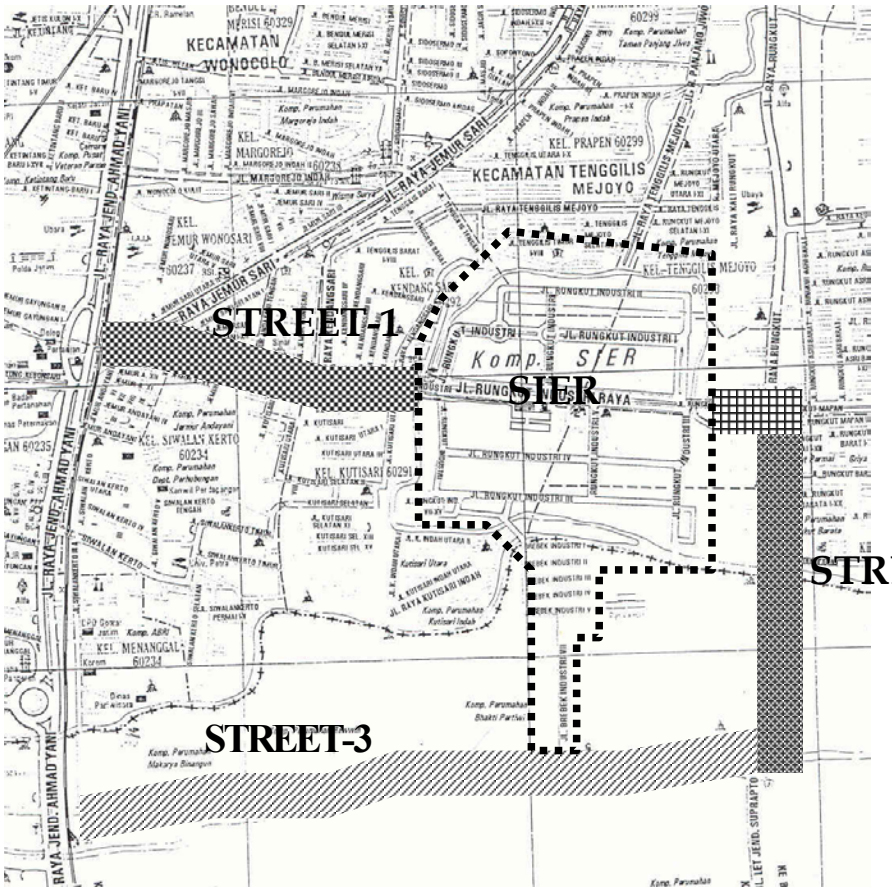


FIGURE 5.17: CURRENT LAND USE IN SURROUNDING SIER

These three case study streets also connect Surabaya to the Sidoarjo district, where the majority of workers in Surabaya live. Thus the commercial activity serves the residential community around SIER as well as the workers passing into and out of the industrial area on a daily basis.

Local government has identified this commercial development along the three major roads as an ongoing land use problem. In fact, commercial activities, including both the formal and informal sectors amount to over 800 separate premises located along the 10.9 km length of these roads. The government attempted to address this problem in the master plan for 2010 by zoning land along the three major roads for an alternative use; residential.

Recent regulation affecting land and building occupation in Indonesia requires that the legal ownership of land or buildings is determined by holding *Ijin Mendirikan Bangunan* (IMB) which allows construction of a building, and *Hak Guna Bangunan* (HGB) providing the right to occupy and trade (Hariyanto 2002, interview, 13 May). These two documents determine the legality of development and land use based on existing zoning regulations.

The results of the questionnaires to commercial occupiers on the three major roads showed that 48% of commercial operators surrounding SIER had a legal document for building and land occupation (i.e. either a IMB or HGB) (as shown in figure 5.18 below). A further 12% hold illegal documents, usually a paid contribution or protection fee to *kelurahan* security, while 1.2% pay gangsters for protection**.** The remaining 40% of commercial operators have no valid documents for building or land occupation.

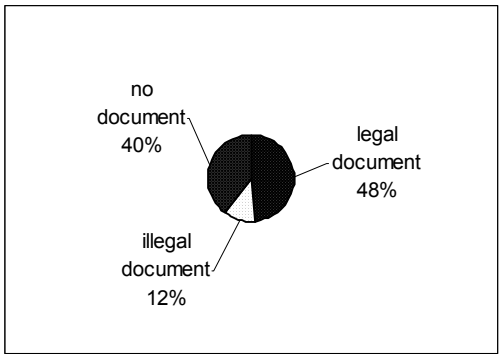


FIGURE 5.18: THE OWNERSHIP OF LEGAL DOCUMENT OF THE COMMERCIAL ACTIVITIES, N=85

The inconsistency of the government approach to land use planning is clearly seen in these figures. While the plan has identified these areas for residential use, commercial activity has grown rapidly and the government has encouraged this through the provision of legal status to land use, contrary to the adopted master plan for the area.

This situation can be seen to demonstrate the influence of SIER's industries in changing the character of urban land use. Even though the government has allocated the areas along the three major roads for residential areas, the power of industrial activity to raise the value of surrounding land cannot be controlled and has brought about higher value land uses, which has displaced residential activity with both formal and informal commercial activity.

5.6 COMMERCIAL ACTIVITIES

The formal and informal sectors of commercial activity are difficult to distinguish since both sectors cover a similar range of commercial activity on both a small and large-scale. This research stands on the definition of the sectors as follows:

The formal sector includes commercial or industrial activity that has a legal license from government to operate the activity and is located on land that is appropriately zoned (Damayanti 2001).

The informal sector includes commercial or industrial activity that has no legal license from the government to operate the activity, but produces a legal final product or service, and is located on land zoned for other purposes (Forbes 1988). The following section will focus on the legal license and zoning regulations affecting formal and informal commercial operations.

The formal sector

In strict legal terms only 48% of commercial activity along the three major roads operates within the law. Contrary, to zoning regulations in the Tenggilis Mejoyo

master plan for 2010, most of the land along these three roads should be for residential purposes. According to Djajawardana (2002, interview, 17 May), the inconsistencies between the master plan and current land use are caused by the influence of industrial activity within SIER on surrounding land values. Local government has responded to these forces by providing legal documents for land and building occupation for commercial purposes.

The 48% of total commercial activity that has a legal document for land and building occupation hold a variety of legal documents as outlined in the figure 5.19 below:

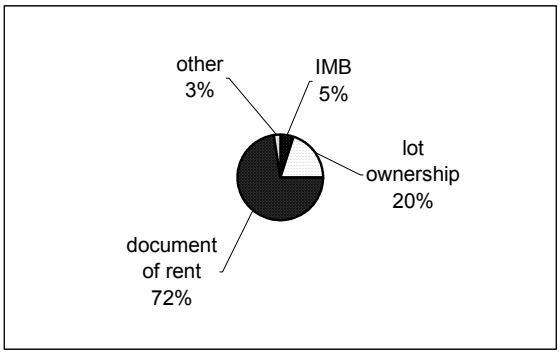
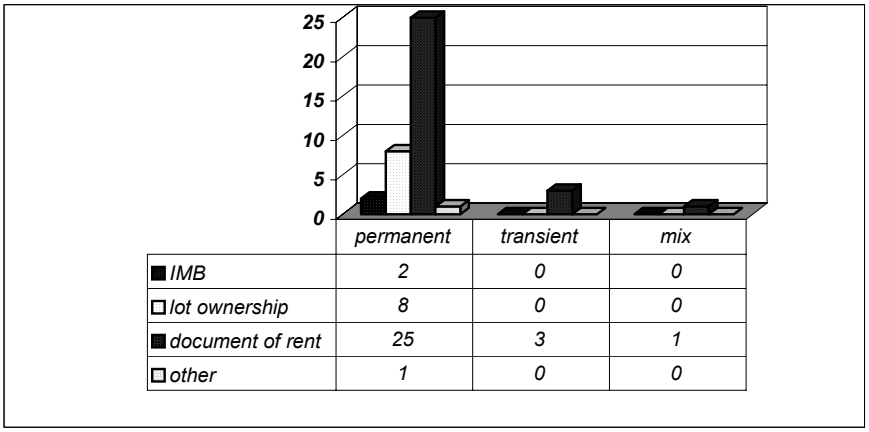


FIGURE 5.19: TYPES OF LEGAL DOCUMENT OF COMMERCIAL ACTIVITIES, N=41

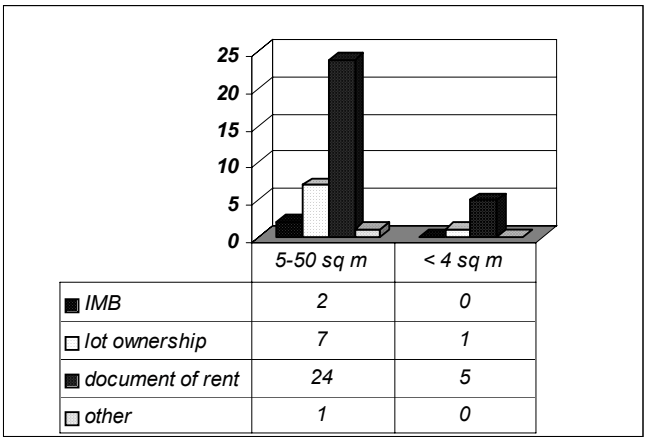
Five percent of the formal commercial sector have IMBs; as the highest level of land and building ownership, which includes government approval for building development. Twenty percent of the formal commercial sector has a document of lot ownership *(petok-D)* that is usually based on inheritance. Seventy two percent of the formal commercial sector has a document of rent from the owner of the building, where the owner holds an IMB for building ownership. Three percent hold other types of legal document, such as a temporary IMB, which is issued in the course of applying for an IMB.



	permanent	transient	mix
IMB	2	0	0
lot ownership	8	0	0
document of rent	25	3	1
other	1	0	0

FIGURE 5.20: TYPES OF LEGAL DOCUMENT CORRELATED PHYSICAL CONDITION OF BUILDINGS OPERATING COMMERCIAL ACTIVITIES

As shown in figure 5.20 above, 92% of the formal commercial sectors on the three major roads occupy permanent buildings from 5 to 50 sq ms (see figure 5.21 below). The majority of the formal commercial sector proprietors rent the buildings from which they operate their businesses. Only 12.5% of the formal commercial sector occupies premises less than 4 sq ms.



	5-50 sq m	< 4 sq m
IMB	2	0
lot ownership	7	1
document of rent	24	5
other	1	0

FIGURE 5.21: TYPES OF LEGAL DOCUMENT AND SIZE OF COMMERCIAL ACTIVITIES

Another characteristic of the formal commercial sector is the larger number of employees (as shown in figure 5.22 below). Eighty-two percent of the formal sector employs 1 to 5 employees, while 18% employs 6 to 10 employees. Another characteristics is the locational choice, 38% of formal commercial sector is located on Street-3, 37% on Street-2, and the rest 25%, on Street-1 (as shown in figure 5.20).

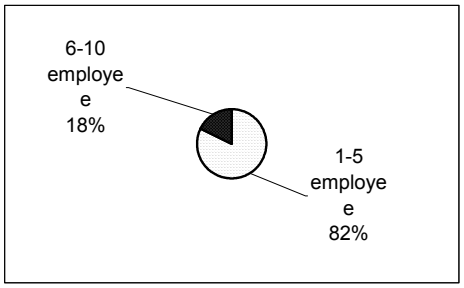


FIGURE 5.22: NUMBERS OF EMPLOYEE, N=41

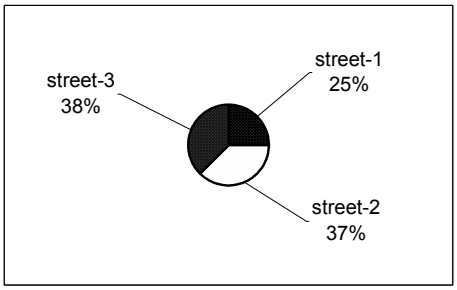
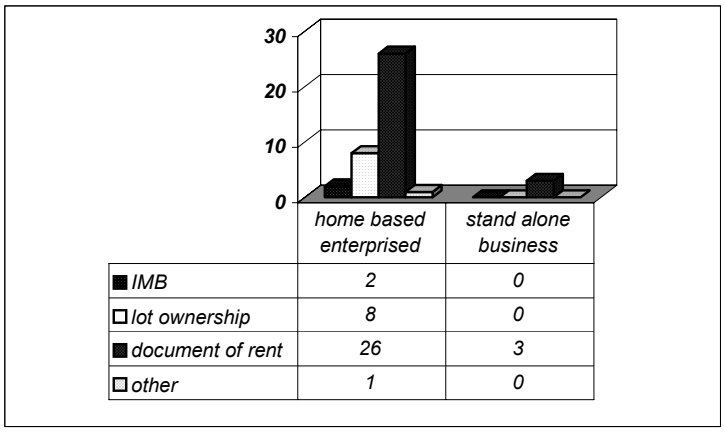


FIGURE 5.23: LOCATION OF FORMAL COMMERCIAL SECTOR, N=41

As seen in the figure 5.24 below, most of the formal commercial sector holds rental documents that allow the operation of a home-based enterprise. In this way, the proprietors of the formal sector can choose to combine business and housing activity. They usually open their business from 9 am to 9 pm for 7 days a week. The eastern and western side of Street-1 is the location of larger home-based enterprises in two to three storey buildings where the ground level is devoted to business activity.



	home based enterprised	stand alone business
IMB	2	0
lot ownership	8	0
document of rent	26	3
other	1	0

FIGURE 5.24: FORMAL COMMERCIAL ACTIVITIES BASED ON TYPES OF BUSINESS ACTIVITY

Most businesses (40%) of the formal commercial sector only sell products while a combination of production sales, and service activity accounts for a further 50% (as shown in figure 5.25 below).

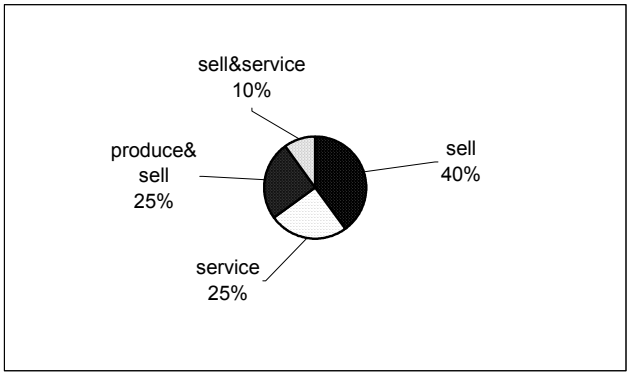


FIGURE 5.25: TYPES OF BUSINESS ACTIVITY OF FORMAL COMMERCIAL SECTOR, N=41

In summary, the formal commercial sector on the three major roads surrounding SIER, have the following characteristics:

- A legal right to building and land occupation (even though this may be contrary to established zoning)
- Proprietors generally rent buildings from private owners of land and buildings
- The majority of formal commercial operators undertake home-based enterprises
- The majority of formal commercial occupy buildings ranging from 5 to 50 sq ms in area
- The enterprises general employ no more than 6 employees
- The location of the formal sector is spread along the three major roads, but the majority operate on Street-3.

The informal sector

The definition of the informal sector involves either illegal documentation or no documentation to support building and land occupation, and takes place on land zoned for other purposes. Twelve percent of the commercial operators on the three major roads have illegal documents and 40% have no documents, as identified in the previous section.

Twelve percent of commercial activity relies on the payment of a protection fee. The informal sector proprietors believe that this payment entitles them to land and building occupation. The government, on the other hand, believes that a document

of protection fee document does not support land occupation (Hariyanto 2002, interview, 13 May).

The protection fee is paid daily and involves a small amount of money. This fee is paid by the informal sector proprietors to the security agent of the *kelurahan* who operates under the authority of the head of the village (Lelianta 2002, interview, 14 May). Alternatively in some parts of Street-1 the fee is paid to local criminals (*preman*). For village government the fee functions as a payment for service, since the informal sector operates from public facilities, such as pavements, open space, and public benches. On the eastern part of Street-1, particular groups of people identified themselves as the protectors of the informal sector in that area. They require protection fees to keep the particular location free from other informal sector proprietors. This area is highly prized for informal business.

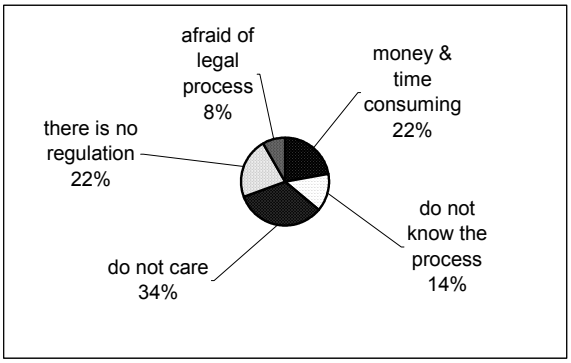
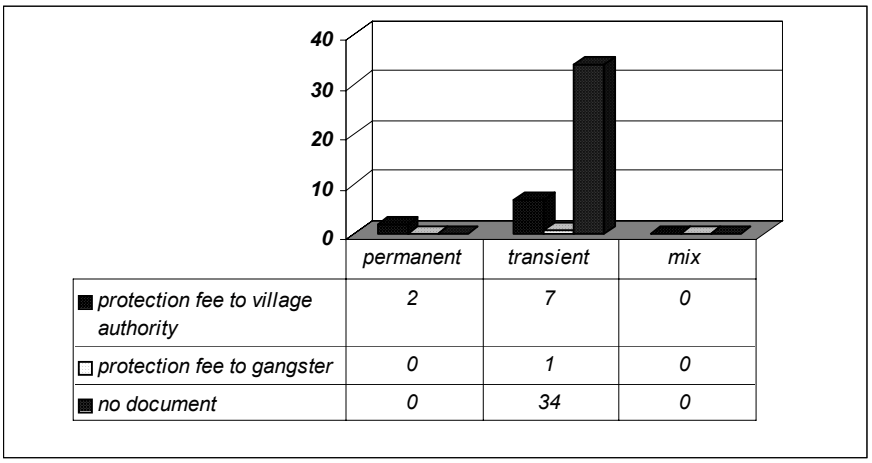


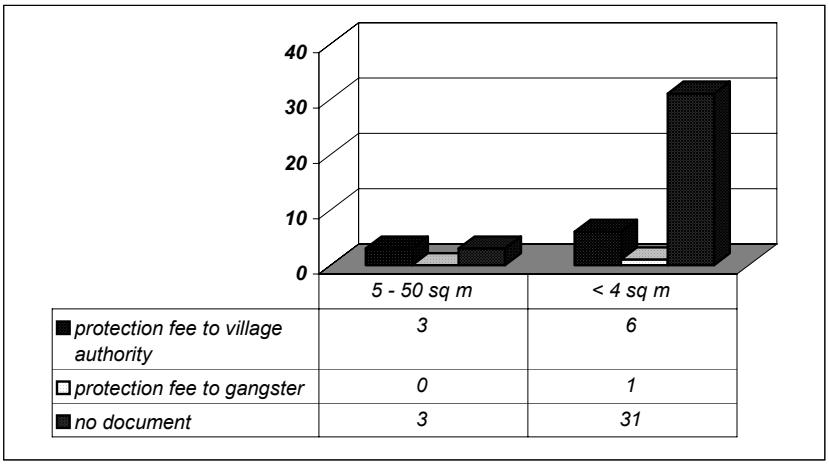
FIGURE 5.26: THE VARIETY OF REASONS FOR THE INFORMAL SECTOR TO HAVE NO LEGAL DOCUMENT, N=44

The figure 5.26 above identifies the reasons offered by the informal sector proprietors explaining their lack of documentation for building and/or land occupation. The majority of the proprietors do not care about their legal status as they have operated their business for a long time without intervention from authorities. A further reason advanced used the transience and scale of their operation as the basis for ignoring local regulations.



	permanent	transient	mix
protection fee to village authority	2	7	0
protection fee to gangster	0	1	0
no document	0	34	0

FIGURE 5.27: TYPES OF INFORMAL SECTOR BASED ON PHYSICAL CONDITION

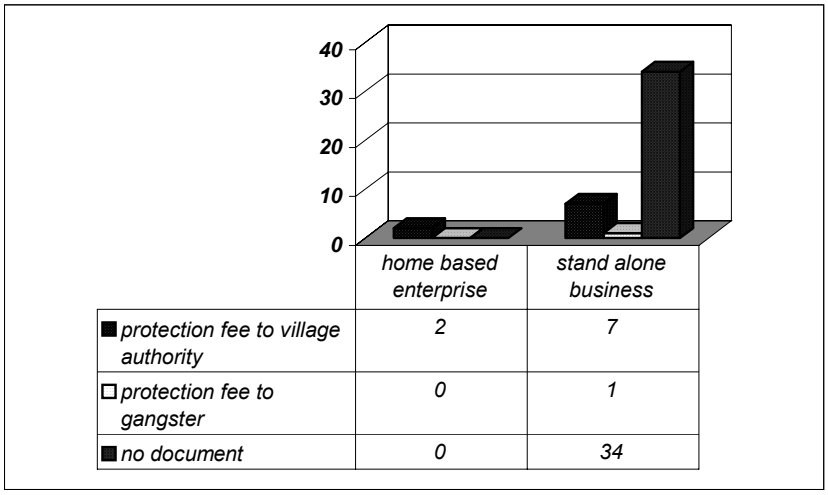


	5 - 50 sq m	< 4 sq m
protection fee to village authority	3	6
protection fee to gangster	0	1
no document	3	31

FIGURE 5.28: TYPES OF INFORMAL SECTOR BASED ON SIZE

According to the figure 5.27 and 5.28, most of the informal sector proprietors have no document for land and/or building occupation occupy transient buildings of less than 4 sq ms. This type of operations accounts for almost 77% of the total informal sector on the three major roads.

Seventy seven percent of the informal sector are stand-alone businesses (as shown in figure 5.29 below). The remaining 23% are home-based enterprises. Stand-alone businesses exemplify the characteristic of the informal sector as a single use operating from transient premises in the heart of the commercial district.



	home based enterprise	stand alone business
protection fee to village authority	2	7
protection fee to gangster	0	1
no document	0	34

FIGURE 5.29: TYPES OF INFORMAL SECTOR BASED ON BUSINESS ACTIVITY

Other characteristics of the informal sector are the numbers of employees and the choice of location. Fifty percent of the informal sector do not have any employees. The proprietors manage, promote, and sell their goods without any help from other people. The remaining of 48% employs a maximum of 5 people to operate their businesses. Only 2% of the informal sector employs more than 6 people (as shown in figure 5.30 below).

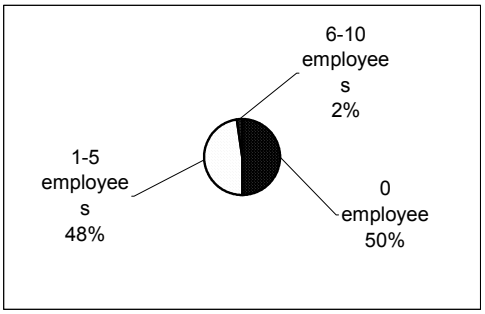


FIGURE 5.30: NUMBERS OF EMPLOYEE OF INFORMAL SECTOR, N=44

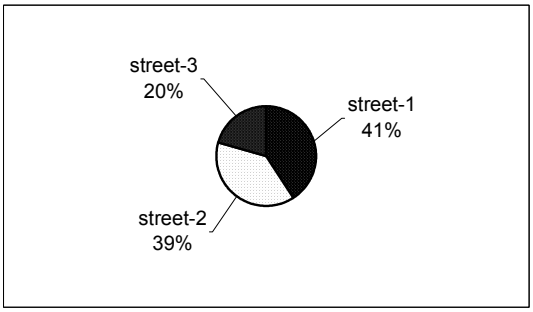


FIGURE 5.31: LOCATION OF INFORMAL SECTOR, N=44

As can be seen in figure 5.31, the informal sector is present on all three major streets with most on Street-1, and the least on Street-3.

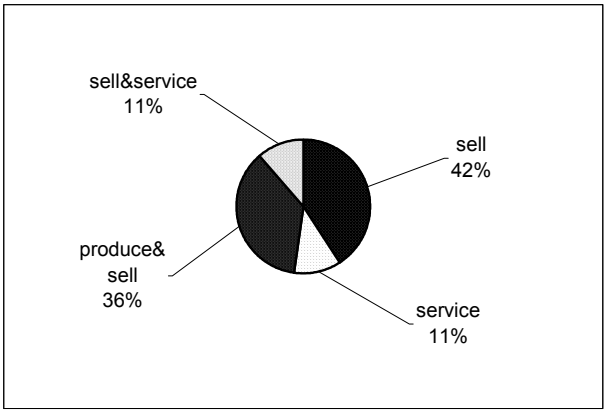


FIGURE 5.32: TYPES OF INFORMAL SECTOR, N=44

The above figure 5.32 shows the type of commercial activity characterizing the informal sector. Most of the activity is involved in selling products, including food and beverages. Thirty six percent of the activity is involved in producing and selling products, whereas service activity or a combination of selling and service activity account for a further 11%.

The informal sector inside the SIER industrial estate has similar characteristics to those described above, except for their legal status. The area of SIER is fully managed by PT. SIER, and includes the management of the informal sector. Many informal sector proprietors see the location of SIER as a strategic location for business, and many have chosen to locate inside SIER, particularly those involved in the production and selling of food and beverages. According to Prijo (2002, interview, 21 May), PT.SIER began organizing the informal activity inside its area in the 1980s. PT. SIER encouraged the informal sector to join together into a single organization to meet the needs of the manufacturing workforce. The activity of the informal sector is now fully controlled by PT. SIER and only recognized informal sector proprietors can operate their business inside SIER.

FIGURE 5.33: INFORMAL SECTOR OPERATORS INSIDE SIER

In summary, the characteristics of the informal sector on the three major roads surrounding SIER are:

- The proprietors have either illegal documents or no documents for land/ building occupation
- The activity and security of the informal sector is controlled by government at a village level, or groups of people that have assumed authority in a particular area
- The major reason for not having legal documents for land and/or building is the proprietors did not think it is necessary
- Most of the informal sector activity operates as stand alone businesses within transient buildings of less than 4 sq ms
- Most of the informal sector proprietors work alone in their businesses
- The majority of informal business sell food and beverages.

5.7 NETWORK ANALYSIS

Network analysis will identify the linkages between the formal and informal sector. The purpose of the analysis is to examine the costs and benefits of both the formal and informal sector to local development, and to identify its impacts on community development in the surrounding areas.

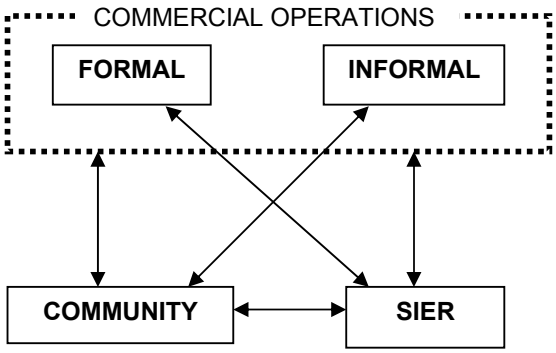


FIGURE 5.34: DIAGRAM OF NETWORK ANALYSIS

This section will also analyze the linkages between commercial operations and community and SIER: the informal commercial sector and the community, and the formal commercial sector and SIER, as shown in figure 5.34 above.

Commercial operations and community

Of the 85 respondents, 41 respondents were in the formal commercial sector, and the remainder were in the informal sector. Figure 5.35 below shows that the majority of customers of the formal commercial sectors are the residents who live nearby, and the majority consumers of the informal commercial sector are people who use the roads along which the activities are located. Only a small number of proprietors service the workers of the SIER industrial estate.

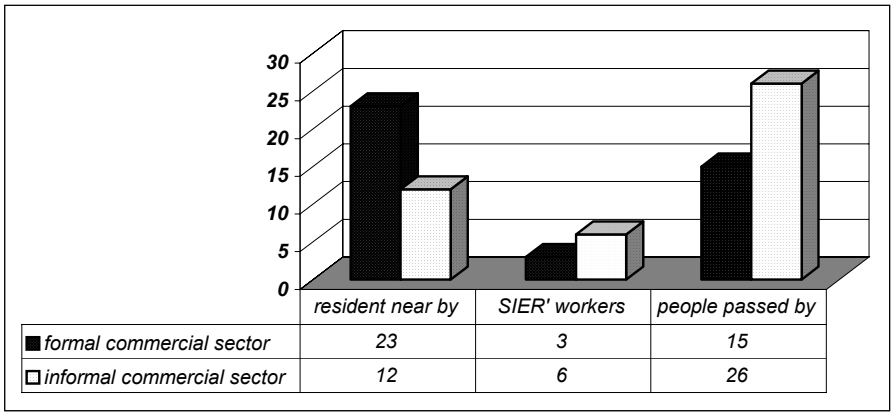


FIGURE 5.35: CONSUMER OF COMMERCIAL SECTOR

Other data shows that almost 56% of the formal commercial sector have links to SIER, and 70% of informal sector proprietors state they have no links to SIER (as shown in figure 5.36 below).

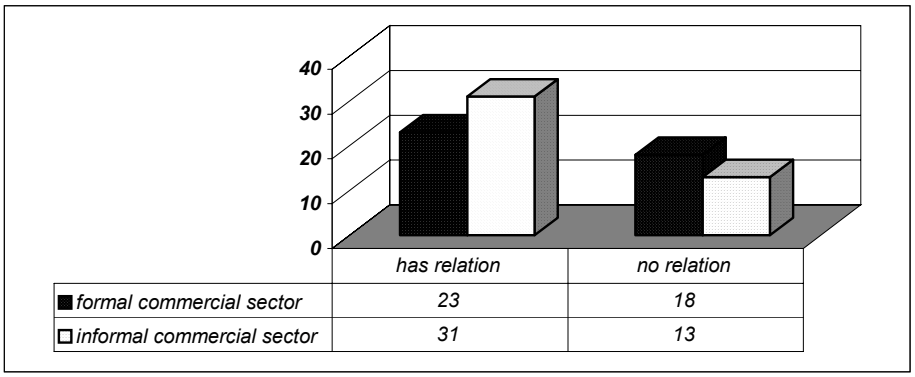


FIGURE 5.36: RELATION WITH SIER OF COMMERCIAL SECTOR

From both figures above, it can be assumed that the relationship between commercial activity, both the formal and informal commercial sector, and the SIER industrial estate is an indirect one. The first diagram shows the majority of the clientele of the commercial sector are not SIER' workers. However, it is also clear that the formal commercial sector serves the needs of the community surrounding SIER, a direct impact of the growth of industrial activity in SIER. The proprietors believe that the growth of the residential community is linked to the growth of SIER.

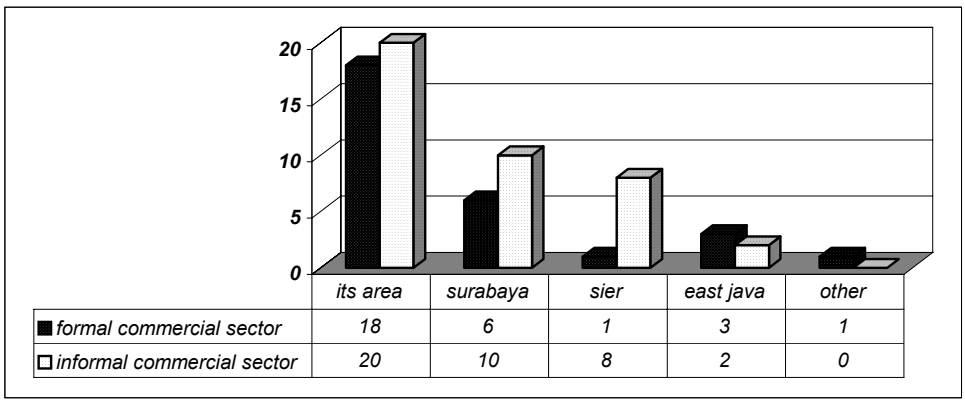


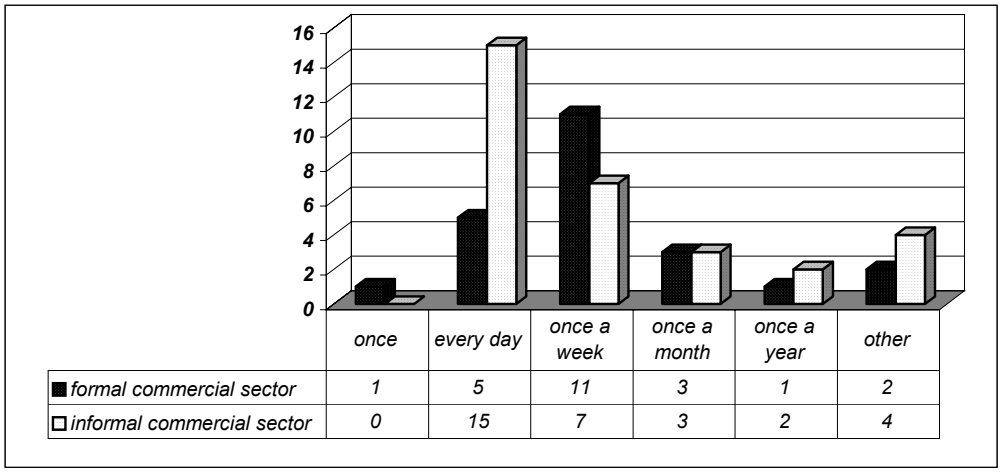
FIGURE 5.37: DISTRIBUTION AREA OF COMMERCIAL SECTOR

Figure 5.40 above shows the distribution catchment of the products sold through formal and informal commercial outlets. Only 13% of the commercial sector

distributes its goods/ services into the SIER industrial estate. The majority of the formal and informal commercial sectors distribute their products into the immediate areas within which their activity is located. The second largest distribution catchment is into the Surabaya municipal area.

Commercial operations and SIER

The frequency of the relationships between the formal and informal commercial sector and the SIER industrial estate is shown in figure 5.37 below.



	once	every day	once a week	once a month	once a year	other
formal commercial sector	1	5	11	3	1	2
informal commercial sector	0	15	7	3	2	4

FIGURE 5.38: FREQUENCY OF RELATIONSHIP WITH SIER OF COMMERCIAL SECTOR

In the formal commercial sector the most common frequency of contact with SIER was once a week. However the informal commercial sectors primarily serves workers on a daily basis through meeting the needs for goods and services.

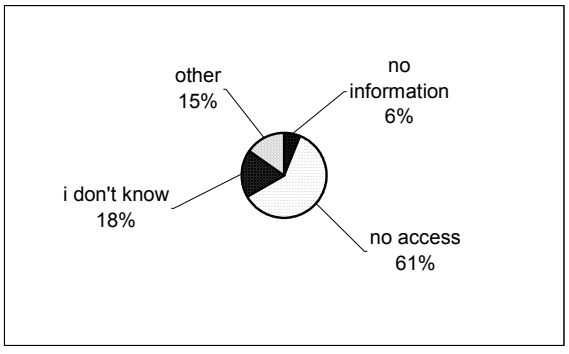


FIGURE 5.39: THE VARIETY OF REASONS OF COMMERCIAL SECTOR HAVE NO RELATIONSHIP WITH SIER, N=85

From figure 5.38 above, it should be noted that most of the proprietors of commercial activity have no direct access to a business transactions within SIER.

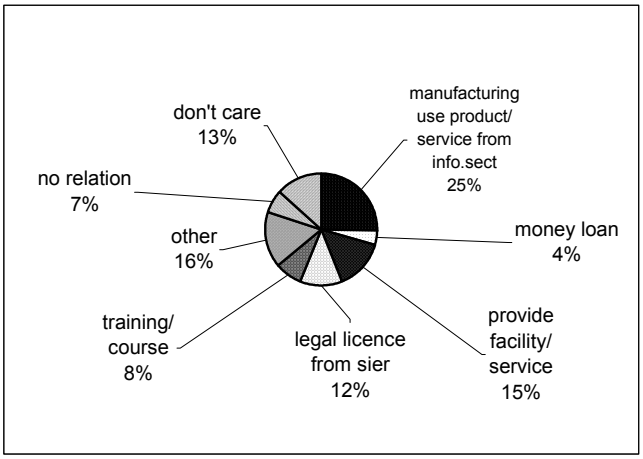


FIGURE 5.40: TYPES OF COMMERCIAL SECTOR'S OPINION ABOUT RELATION WITH SIER, N=85

The figure 5.39 above shows the opinions of commercial proprietors regarding their relations with SIER. The majority of the proprietors believe that the provision of goods or services into the SIER estate is the best way to consolidate the relationship, since it is felt that this relationship could also help the development of the local area. Other opinions vary but include: the provision of services from SIER to the commercial sector and the provision of legal licences to operate within SIER (for: informal sector proprietors).

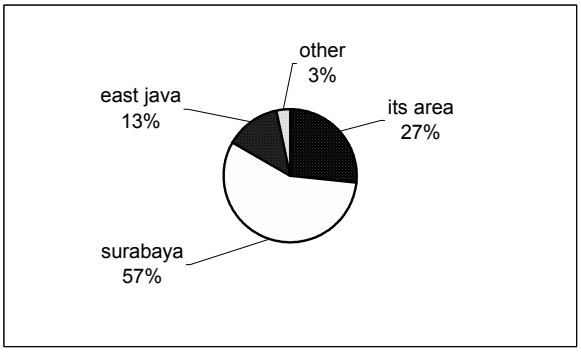


FIGURE 5.41: LOCATION OF RAW MATERIALS OF COMMERCIAL SECTOR, N=85

The figure 5.41 above shows the location of raw materials sourced by the formal and informal commercial sector. The majority of enterprises source their raw

material from the Surabaya municipal area, and none receive inputs from the SIER industrial estate.

In summary, the relationship of the commercial operations to SIER is indirect, and operates through the residential community that has been attracted into the area by the job opportunities available of SIER. There is only a minimal contribution of the commercial sector into the SIER production system. Rather this sector operates in a production and distribution system that includes the whole Surabaya municipal area.

SIER and community

In analyzing the links between SIER and the surrounding residential community, 100 respondents living in the surrounding suburbs were questioned on their links to SIER (as explained on previous section).

The figure 5.42 below shows the work place of the respondents. Most of the residents work in the formal sector outside the local area, for example in government and private agencies in other districts of the city. Thirty five percent of the respondents work in the SIER estate and only 7% of the respondents work in the informal commercial sector in the surrounding areas.

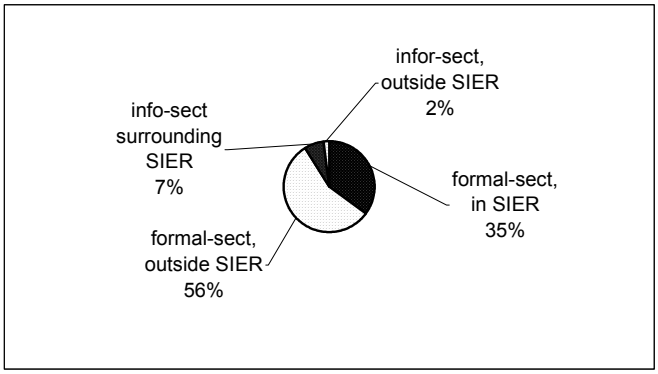


FIGURE 5.42: WORKPLACE OF RESIDENTS ON SURROUNDING SIER, N=100

Sixty percent of the respondents identified a relationship to SIER, such as place of work, product source, and serving the workers. The figure 5.43 below shows the variety of these relationships with SIER (see figure below). Forty three percent of

respondents work in the manufacturing sector at SIER, 30% serve the workers, and 8% buy products produced from SIER's factories.

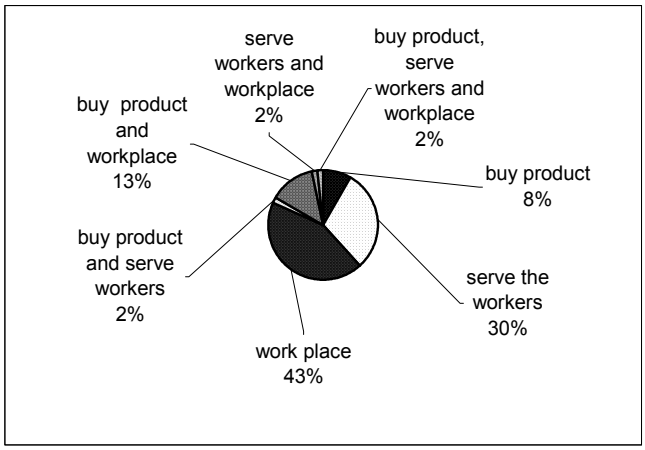


FIGURE 5.43: THE VARIETY OF RELATIONSHIP WITH SIER OF THE COMMUNITY, N=100

Forty percent of the respondents said they had no relationship with SIER. The reasons were varied as indicated on the figure 5.44 below. Most of the respondents said they do not access SIER and have no reason to do so.

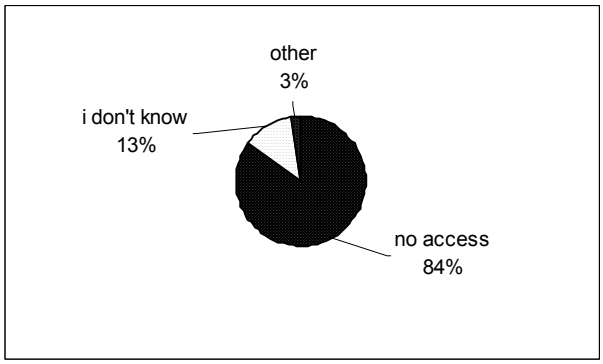


FIGURE 5.44: REASON FOR HAVING NO RELATION WITH SIER, N=40

The questionnaire also sought responses to the impact of the SIER industrial estate on the surrounding residential community. Sixty nine percent believe that traffic congestion is the worst negative impact of SIER, while 62% identified population growth as a positive impact. None of the respondents mentioned the provision of jobs as a beneficial impact of SIER, which is surprising given that 35% of respondents are part of the SIER workforce. In brief, the contribution of SIER to the surrounding community appears not to be significant.

Informal commercial sector and community

From the data analysed in the previous sections, it is clear that only a small number of the surrounding residents work in the informal commercial sector (9%) but many more of these residents access the informal sector to obtain goods and services.

Seventy eight percent of respondents identified a relationship with the informal sector. The figure 5.45 below shows the variety of these relationships. Seventy six percent is related to buying products, and 22% are employed in the informal sector.

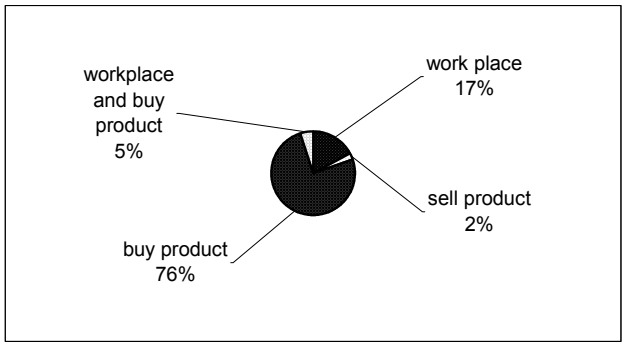
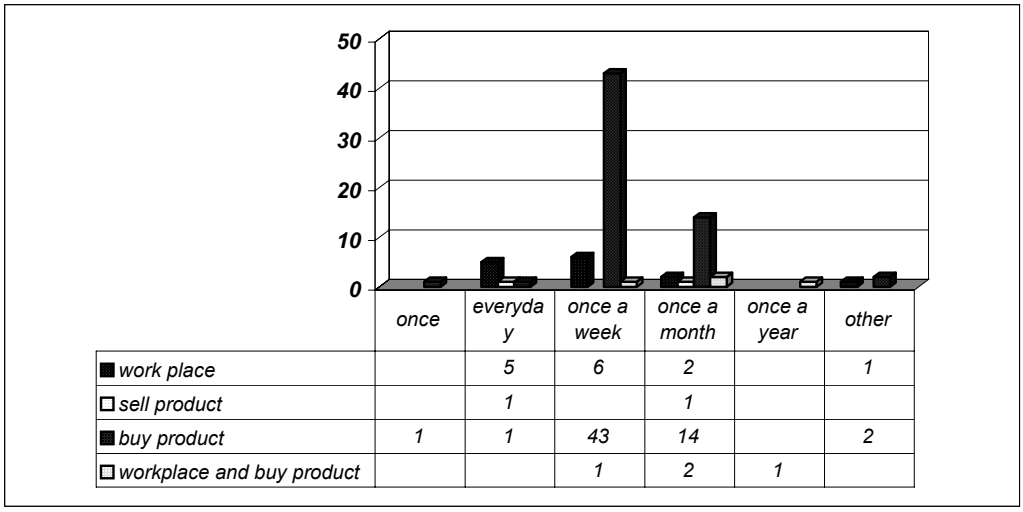


FIGURE 5.45: THE VARIETY OF RELATIONSHIP WITH INFORMAL SECTOR, N=78

The frequency of the relationship can be seen on the figure 5.46 below. Most of the respondents buy products from the informal sector at least once a week, and only a small number of the relationships occur on daily basis. Several respondents (9.8% of total respondents) work in the informal sector on a part time basis, once a week or once a month.



	once	everyday	once a week	once a month	once a year	other
work place		5	6	2		1
sell product		1		1		
buy product	1	1	43	14		2
workplace and buy product			1	2	1	

FIGURE 5.46: THE FREQUENCY OF RELATIONSHIP WITH INFORMAL SECTOR, N=100

Twenty two percent of respondents said they did not have a relationship with the informal sector. Their reasons are varied, and can be seen on figure 5.47 below. Sixty two percent of the respondents prefer to buy from the formal commercial sector, and a further 16% noted the poor quality of products/ services available from the informal sector.

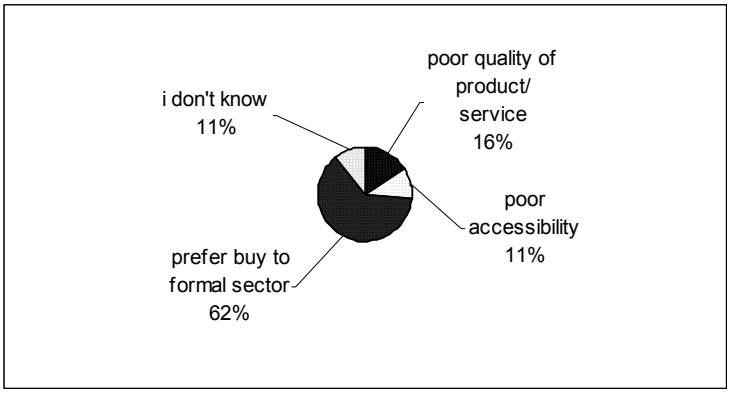


FIGURE 5.47: THE VARIETY OF REASONS HAVE NO RELATIONSHIP WITH INFORMAL SECTOR, N=22

Fifty one percent of the respondents identified service provision as the most beneficial aspect of the operation of the informal sector. Fifty five percent of the respondents believe that job opportunity provision is the least beneficial aspect of the contribution of the informal sector. The impact of the informal sector on the

environment is mostly due traffic congestion, which was mentioned by 77% of the respondents, and a further 49% identified air pollution.

In summary, the main contribution of the informal sector to local development appears to be in terms of goods and services provision. There is little contribution from the informal sector to job provision in the local community. The majority of the informal sector proprietors come from other sub-districts within Surabaya.

5.8 SUMMARY

This chapter has analyzed government' planning documents and the findings of a land use survey and questionnaire. This analysis has been used to develop understanding of land use dynamics within this district of Surabaya.

Initially the chapter identified the location of the case study and the character of its land use. The case study focused on the three major roads accessing the SIER estate and the impact of industrial activity on the surrounding community.

SIER is located between two competing local government areas; the area of Surabaya provides the bulk of job opportunities while neighboring Sidoarjo supplies the majority of the workforce. The three major roads of SIER connect Surabaya to Sidoarjo, and other parts of East Java. The industrial activity in SIER also relies on the accessibility of these streets to support their production and distribution processes. The accessibility of SIER has led to population increases in adjacent areas. Areas near SIER are mainly occupied by workers' housing, and workers with jobs in other parts of the city.

Analysis of urban planning for the case study shows that it is based on a master plan; Tenggilis Mejoyo 2010, which allocates the areas surrounding the three major streets to residential purposes. The local government has identified the intrusion of commercial activity on the three major roads as a significant planning problem.

The development of the formal and informal commercial sector is related to the demands of a growing population in the area. This has resulted in significant land use change along the three major roads. Over 800 commercial activities occupy this area during the day and at night-time. This activity is dominated by the sale of food

and beverages, the provision of services, and other daily needs. There is a significant difference in the structure of commercial activity on Street-1 compared to Streets-2 and 3. During the day time, Street-1 is mostly occupied by home-based enterprises, whereas at night-time stand-alone transient business, typically street vendors, dominate the distribution.

In terms of the legal status of the sector, almost half of the total commercial activities on the three major roads have a legal document supporting their activity. This reflects the inconsistency of the approach of government to land use planning problems. While the plan has allocated the land for residential use, the government has provided legal documents, which allows the land to be used for commercial purposes.

For the entire commercial sector, based on the legal ownership or occupation of land 48% can be considered legal and are categorized as the formal sector, 40% have no document, and 12% have an illegal document. The 40% and 12% categories define the informal commercial sector. The majority of formal commercial sector occupy permanent buildings between 5 to 50 sq ms; operate home-based enterprises, and their main business activity is selling products. Most of the informal sector operate a stand-alone business within buildings of less than 4 sq ms, the proprietors work individually, and the main business activity is again the sale of products.

The relationship between the formal and informal commercial sector and the SIER industrial estate is an indirect one. There is only a relatively small direct contribution from the formal or informal commercial sector to the activity of SIER. The contribution of SIER can be seen in the provision of job opportunities, which in turn has led to urban migration and population growth, providing development opportunities for small business development.

6.0 DISCUSSION

As explained in the previous chapter, the areas surrounding SIER are designated by local government for residential purposes. The growth of formal and informal commercial activities in these areas has demonstrated the power of market demand in overcoming the constraints of land use regulations. It also outlined the interdependency of the formal sector, represented by the industrial estate, and the informal sectors characterized by street vendors and home-based enterprises. This interdependency is based on demonstrable links to SIER's industrial activity, through direct and indirect contribution to production systems, job opportunities, and services provided to employees.

Given the current occupation of land in areas surrounding SIER, zoning regulations seems incapable of enforcement. In determining the reasons behind this incapacity it is important to examine the locational choice behind the industrial estate, the role of the planning system, and the relationship between the political system and land management policies.

This chapter will discuss the reason for the land use change and address the research questions posed in this thesis: the causes of land use change, the nature of linkages between the formal and informal sector, and the appropriateness of zoning regulation in Surabaya. It will compare the theoretical background identified in chapter 2 with the conditions in the case study area. This chapter is divided into three sections based on major issues rising from an analysis of the findings of the surveys and the interviews conducted with stakeholders in Surabaya.

6.1 LAND USE CHANGE

In LDCs, urbanization follows economic growth, ultimately resulting in increasing urban populations. This increasing population creates the potential for uncontrolled urban expansion, and a demand for urban infrastructure and urban land that in most cases the government can often ill afford to provide (Balchin, Isaac & Chen 2000). Land use change in Indonesia, as explained in chapters 3 and 4, is also influenced by political issues affecting development and in particular the shift from the New

Order government to the Reformasi government. This shift has encouraged planning latitude at the local government level in its approach to the informal sector, and its economic response to urban expansion.

This situation is compounded in the area around SIER where two local governments have divided responsibility for urban expansion. This situation has not been resolved by intervention at a regional level, and local rivalry for development opportunities have undermined the status of planning controls. Based on the analysis of the findings, land use change surrounding SIER can be explained by the growth of Surabaya city, and of the industrial employment base generated by SIER. Both processes have encouraged unregulated land use change in the case study area particularly along the three major roads that service the SIER estate.

Planning systems in LDCs

Indonesia, and other LDCs such as Brazil, Mexico, and India, are categorized as contemporary industrializing countries (Balchin, Isaac & Chen 2000). As part of this industrializing process they have experienced massive structural employment change from agriculture to industry (Mills & Hamilton 1989). The majority of the Indonesian workforce is still employed in the locally based agricultural sector, while the newer industrial activities are linked to global markets. According to Thee (1994), Indonesia and India have significant differences in their industrial development profile. India has a strong economic nationalism based on the domestic demand of a maturing industrializing country while Indonesia experiences significant economic dependency on the markets of the U.S., Germany, and France. For this reason, countries such as Indonesia with its abundant natural resources and large population become locked into a world market through the export of cheap, low-skilled labour-intensive products that return little benefit to employees or the wider population through multiplier effects (Thee 1994).

This difference reflects the level of maturity of industrial development in India and Indonesia. As shown in chapter-3, current industrial planning at the national level in Indonesia prioritizes a modern manufacturing sector characterized by mature, harmonious, strong and advanced production systems (Perindustrian 1994). However the existing condition of industrial activity at the local level, in areas such as Surabaya, is characterized by large numbers of small industrial operators

(PEMKOT-SBY 1994). This typifies industrial development in LDCs with their dual focus on a modern export oriented manufacturing sector and a traditional industrial sector (Singh 1986).

The imbalance and confusion in industrial planning approaches at the national and local level has not helped local government in the preparation of policy and land use guidance for industrial purposes. As explained in chapter 3, industrial planning at the local level (such as Surabaya municipality) focuses on two types of planning: policy and land use guidance (PEMKOT-SBY 1994). While these plans are generated at the provincial level by the same government agency, they fail to respond to local imperatives of control and regulation.

During the New Order regime, the government in Indonesia operated a strong 'top-down' policy agenda (Hilly 2002, interview, 15 May). It was very rare to hear of problems of land occupation and informal activity at the local level. While, theoretically, community groups at the local level were consulted on development scenarios, rarely did this exert influence on planning outcomes or allow the community to share in the benefits of development (Hilly 2002, interview, 15 May). Rather, they were faced with the considerable task of managing poorly planned growth of which the informal sector had become a vital part. Recently, when this regime was replaced by the Reformasi government, the problem of the informal sector has become more overt (as explained in chapter 1). This is in response to the 'bottom-up' approach of the Reformasi government, which requires it to be more responsive to the needs of every level of the community, including the informal sector.

Both regimes reveal major differences in their approach to land management and it will take time to adapt the old planning traditions of the previous government to the new demands of 'Reformasi'. The current situation shows that even though every level of the community has equal opportunity to be involved in local development, usually through the advocacy of non-government organizations (NGOs), the influence of NGOs is still emerging and their performance is still only marginal due to structural and cultural inertia (Hilly 2002, interview, 15 May). On the other hand, private consultant planners have traditionally argued for development led agendas, often at odds with local government controls and the needs of the local community (Poerbantanoe 2002, interview, 17 May).

As explained in chapter 4, Indonesia's regional development has focused on decentralized development, in partnership with regional and local government and this has encouraged further investment in manufacturing activity (Suprayitno 2002, interview, 15 May). This reflects the dominant position of manufacturing activity as a dynamic base component of development. This explains the leading role it has played in planning strategies (Weiss 1988). The change from centralized to decentralized development has encouraged land speculation by investors seeking to attract high value economic activity (Poerbantanoe 2002, interview, 17 May). This has put considerable pressure on local government in controlling land use change within the context of local planning.

In India, planning approaches have been developed based on the views of planning consultants schooled in Western European, and North American planning ideology (McAuslan 1985). In Indonesia, the current planning regulation and laws are adapted from original Dutch legislation. For example, one of the government policies in Surabaya that current urban planning still defers to SVO (*Stadvorming Ordonantie Stadsgementee Java*) and SVV (*Stadvormings vor Ordonantie*), which are urban planning regulations based on Dutch (colonial) law (Surabaya-Pemda 1991b). These outdated prescriptive laws and regulations are not responsive to the needs of the current community and state.

Indonesian planning, including the early Dutch approach, does not recognize the existence of an urban poor from which the informal sector has emerged (De Soto 1989). In LDCs the existence of the urban poor is a natural consequence of industrialization. As explained in chapter 2, the urban poor are ignored by LDC governments due to the incapacity of the government to balance the needs of industrialization with the state's and the people' needs through effective planning. No regulations or laws recognize the existence of the informal sector so it becomes a neglected component of the urban planning system (McCann 1996).

Regional planning of industrial development

Another issue that causes land use change in areas surrounding SIER is the location of the estate in between two demanding local governments: Surabaya municipality and Sidoarjo district. As explained in chapter 5, Surabaya is a major provider of job opportunities, whereas Sidoarjo is a major source of affordable

housing locations where the majority of Surabaya' employees live. As explained in chapter 4, in 1988 the Governor of East Java province identified Surabaya as a major gateway to five adjacent districts, including Sidoarjo, to further network development opportunities (PEMKOT-SBY 1994). Sidoarjo district is an important growth zone to the south of the Surabaya metropolitan region. This location is advantageous due the proximity of the international airport and its domination of the leather industry that has global market pretensions (see figure 4.3). In addition, areas west and south east of Surabaya have also been identified for the location of housing estates to replace the *kampoong* areas inside Surabaya (see figure 4.4). The provision of infrastructure in this area is the responsibility of two local governments. This includes the provision of a transportation network to and from Surabaya and to other cities in East Java province. The regional government; East Java province, has also prioritized infrastructure development in this area particularly as it impacts on the operation of the Juanda international airport and the growth of the leather industry.

According to urban land economic theory analyzed in chapter 2, urban growth leads to changes in the intensity and character of land use (Balchin, Isaac & Chen 2000). Land use change in the areas surrounding SIER can be understood in relation to this context. Firstly, business proprietors, including the informal sector, have formed the view that this area is a good location to maximize business opportunity. The land use has been changed from residential to commercial, reflecting the higher value and capacity to pay enjoyed by commercial operators. Secondly, the location of SIER, originally developed as a decentralized manufacturing node, was quite remote from existing commercial premises. To minimize transport cost and to maximize convenience, commercial uses have developed around the SIER industrial estate to provide a vital service to workers on the estate.

Both of the reasons above are predictable consequences of industrial location, but the associated lack of land use control has brought disadvantage to the local business environment. According to Gillie (1967), industrial activity cannot be seen as an isolated source of employment, but rather as a center of commercial exchange. In other words, the impact of industrial activity must be seen in the wider context of regional development. The impact of the SIER industrial estate has extended beyond Surabaya to the East Java province and, in particular, to the adjacent local government of Sidoarjo. The industrial planning of SIER should thus

be seen as an issue of regional significance, requiring commensurate regional planning control.

Issues of equity in the location of industrial activity within a regional context are important (Hewings 1977). The government at the regional level is required to balance the benefits of industrial development and minimize the shortcomings of industrial impacts. In this case study, there is no comprehensive regional planning framework to balance such costs and benefits. The regional industrial planning of SIER has been predicated within the context of the Surabaya municipality, yet the surrounding commercial activity, housing estates, and squatter settlements can now be considered as local planning problems given the impact and proximity of industrial activity.

The planning of the areas surrounding SIER (RDTRK Tenggilis Mejoyo) has not been based on any comprehensive analysis of current problems, such as illegal land use occupation (as described in chapter 5). As such there is a mismatch between problem analysis of the master plan and the planning outcomes represented in the master plan. For example, analysis of the three major streets indicates unplanned commercial activities have located in adjacent areas to the industrial estate. However, an effective planning response is constrained by the context of the existing master plan that fails to recognize the reality of illegal land occupation.

Power of the city and industrial activity

As explained previously, the inception of Surabaya city originated around Tanjung Perak harbor (see figure 4.1). Further development of the city proceeded in a southerly direction and it is in this vector of development that the SIER industrial estate is located (see figure 4.2). In addition, growth has followed existing transport routes into the surrounding East Java province. Industrialization has had a major impact on the growth of Surabaya as migrants have flocked to the area in search of job opportunities. This impact is felt not only at the regional level, but also at the national level. After Surabaya was recognized as the capital of East Java province, the role of the city as a source of job opportunities has become more significant. Surabaya is now the second largest and most modern city in Indonesia.

The power of Surabaya in the region has encouraged the development of areas such as those around SIER. As development has progressed so land values have increased. Commercial activities have located in areas of high accessibility particularly along major roads to the airport and industrial areas. Residential uses have also developed in these areas to meet the needs of Surabaya' workers, particularly young families. The questionnaire to the residents revealed locational determinants related to the proximity of friends or relatives, and the accessibility of work opportunities in the central city. While the Surabaya Master Plan has identified this location for residential use, this was based on the need to house city based workers. Based on field investigation in June 2002, there were almost 18 housing estates in areas surrounding SIER with housing designated to accommodate the needs of middle and high-income groups. This has constrained the development of accommodation for SIER workers and thus encouraged illegal residential occupation.

> *Because the demand for urban land increases more than proportionately with income, especially on the part of the prosperous and expanding middle class, the rate at which land was taken up for urban use was therefore roughly in line with predictions. However, the Surabaya' master plan guidelines were not closely followed. There was no staged release of residential land, and little preservation of green belts*
> *(Dick 2002, p.378)*

Land accessibility issues are the main force for development in this area, particularly the change of land use to accommodate residential estates and commercial premises. The greater the accessibility of a location, the greater the demand for property in that location and the greater land value (Balchin, Isaac & Chen 2000). The accessibility afforded to Surabaya city center due to the provision of government infrastructure has made the area surrounding SIER an attractive location for residential and commercial uses. Industrial activity in SIER also attracts the need for housing and commercial purposes for lower classes of workers.

According to Balchin, Isaac, and Chen (2000), the location of the retail sector is predicated on an assessment of profitability. As has been shown in the case study, retail activity has chosen to locate along the three major roads as a strategic location for maximizing profit. Retail activity seeks to maximize demand by locating as close as possible to consumers (Stahl 1987). The majority of SIER workers live in

areas adjacent to SIER, and retail activity, such as street vendors, operate in areas with high levels of accessibility to workers' housing (see figure 5.4).

Both powers, industrial activity (represented by SIER) and Surabaya city are now competing to increase the intensity and complexity of land use to meet their distinctive needs in a regulatory environment that appears impotent in meeting the challenges of land use allocation. In areas surrounding the SIER industrial estate, the limitation of the broad zoning restrictions have become apparent because the city has spread and industrial output increased (Dick 2002). Dick stated two limitations. First, there has been no monitoring of environmental conditions. Second, residential development, both real estate and *kampoong,* has been allowed to invade to the edge of the SIER estate, where a green belt would have been more appropriate.

In brief there are two forces that are encouraging the development of areas surrounding SIER: the power of the Surabaya city itself, and the power of competitive industrial activity in SIER. Both forces have encouraged development, creating a climate that has seen land values raise and commercial operators outbid residential occupiers in strategic locations.

6.2 THE NATURE OF LINKAGES BETWEEN THE FORMAL AND INFORMAL SECTORS

Having analyzed the reasons behind land use change in the area surrounding SIER, it is important to clarify the relationship that exists between SIER as a formal sector characterized by legal industrial activity, and the informal sector characterized by small retail activity. This section will discuss the linkages between the formal and informal sectors in the case study area and reflect on the role of the informal sector in supporting industrial activity in LDCs.

Characteristics of formal and informal sectors

As explained in chapter 5, the definition of the formal and informal sectors are distinguished by the ownership of legal documents relating to land and building

occupation, and the conformity of land use with land zoning. Any commercial activity in an inappropriate zone is officially considered to be part of the informal sector. In the case study, according to the master plan, the land surrounding the three major roads are allocated for residential purposes, except the urban unit of Tenggilis Mejoyo (see figure 5.5). Thus on the grounds of zoning alone, the majority of the commercial activity in this area must be considered informal. However, much of this commercial activity has legal documentation relating to land and building occupation, and thus can be considered formal. As explained in chapter 5, almost half the commercial activity on the three major roads holds such legal documents, and have been categorized in the formal commercial sector. The remaining premises are considered informal on the basis of such legal criteria.

According to Ramanujam (1998), the informal sector can be seen as a heterogeneous activity. Along the three major roads in the case study, the informal sector includes varied activities including the production, selling, and servicing of goods. There appears to be no specialized locations of particular categories of informal activity. In terms of building permanence, the informal sector also exhibits variety of conditions such as; established, foot loose and home based (Awasthi, Bhandari & Pandey 1994). However, the informal sector typically operates businesses selling daily needs from transient stalls located on public property.

During the daytime, most of the commercial sector is located on Street-3, and it occupies permanent greater than 4 sq ms (see figure 5.14 and 5.15). During the night time, the commercial sector mostly operates on Street-1, with transient/ non-fixed building of less than 4 sq ms (see figure 5.12 and 5.13). Compared to the data shown in figure 5.20 and 5.27, most of transient/ non-fixed commercial sectors are categorized in the informal sector. Commercial activity at night time generally does not under government regulation and control of the activity falls to the village authority or gangsters.

The informal sector activity mostly operates after the working hours of the industrial estate and particularly at weekend nights. In other words, the characteristic of the informal sector is its dependency on access to the formal sector in SIER. As explained in chapter 5, most of the informal sector are street vendors located in areas with high accessibility to SIER indicating the dependency of the informal sector on the SIER industrial estate, especially through the workers who are their major costumer base.

In addition, other characteristics of the informal sector have been identified; the small scale of the businesses, family ownership, and its competitive operating environment (Haan 1989). Half of the informal sector employs no-employees, and the proprietors operate the business by themselves (see figure 5.30). This exemplifies the scale of the business activity under investigation. The significant linkages of the informal sector also reflect the scale of its activity. Most of its consumers are 'passing traffic' on the road, and nearby residents. The survey confirmed that most operators only distribute their products to the immediate area around their business location. Competitiveness can be constrained by paid groups of people that keep particular locations from invasion by other informal sector operators.

The nature of the linkages

As explained in chapter 2, two critical development issues distinguish LDCs from developed countries (Evans 1985). Firstly, LDCs experience a very rapid rate of expansion mainly because of migration to the cities from rural areas following development initiatives. Secondly, LDCs have to address issues surrounding the development and control of informal activity, and squatter settlements. As shown in chapter 2, it is population growth that has led to the high concentration of workers in urban areas (Hayter 1997). In the case of the industries in SIER the cheap and abundant labour in Surabaya has been a major attraction factor (Prijo 2002, interview, 21 May). After SIER was developed, the population in the surrounding area grew rapidly. Parallel with the maturity of the industrial estate, urban growth issues have become significant along with the growth of the informal sector (Ramanujam 1998). Surabaya city is incapable of absorbing large numbers of job seekers into the formal sector resulting in growth pressure in the informal sector. After the economic recession in Indonesia in 1998 (Azis 2000), the number of business in the informal sector have increased, demonstrating an important link between the two economic sectors.

Since the labour wage in Indonesia is relatively low (Thee 1994), labourers attempt to minimize their transportation cost to workplaces. The labourers of SIER prefer to live in areas close to SIER, and most rent rooms from land owners who previously were engaged in the agricultural sector (Sigit 2002, interview, 14 May). As explained

above, most of the small informal sector proprietors (street vendors) operate in an area between SIER and Street-2, which is in close proximity to this labourer accommodation. The growth of the informal sector appears to follow the location of labourers housing.

The informal sector in LDCs is very much a part of evolving urban lifestyles. The advantage of this development to national economic growth, in terms of job opportunities, cannot be denied. Based on the findings in chapter 5, the relationship between the formal and informal commercial activity and the SIER industrial estate is an indirect one through the provision of goods and services to the residential development that has been attracted to the industrial zone.

However, the job opportunities available in the industries of SIER and the informal commercial sector have little impact on or benefit for the residents surrounding SIER. Most of the residents work in the formal sector in the central city, and most of the informal sector proprietors live in other sub-districts in Surabaya. In brief, the local development of SIER industrial estate has encouraged the growth of the surrounding area, and the informal sector has contributed to local development by providing goods and services to this residential community.

6.3 ZONING AND LAND USE REGULATION

From the previous discussion relating to land use change in the case study, it made it clear that the main problem revolves around urban land management. Currently, urban land use management in Indonesia and other LDCs is based on zoning systems, which rigidly divide the use and allocation of urban land (Johnson 1997). Research in other LDCs, such as India (McAuslan 1985) and Peru (De Soto 1989), has indicated that such an approach is not conducive to effective land management. The case study surrounding SIER industrial estate, clearly proves that the zoning system is not working effectively whereas there is a mismatch between intention and reality.

The informal sectors whether in Indonesia, Peru, or India, are included as illegal occupants of land, which brings many problems for government agencies and some advantage for low-income groups. The government sees the existence of the illegal occupation of land as a problem of urban land regulation (McCann 1996). Currently,

governments in LDCs regard the informal sector as a part of a systematic transition from an agricultural to an industrial economy (Williamson 1995). On the other hand, the activity of illegal occupation benefits low-income people since this activity can lead to a dependable source of employment, income, and livelihood (Simon 1998).

According to Oberlander (1985), land is a unique resource, limited in its supply but endless in the variety of its use. As explained in chapter 2, in a free market economy competition between supply and demand determine the highest and best use of land (Balchin, Isaac & Chen 2000). The government plays a significant part in framing the context of competition for the benefit of the state and the people (Kivell 1993). Governments of many LDCs have formalized the urban land market leading to commercialization and consolidation of urban land (Oberlander 1985). This approach of government ignores the realities of the existence of informal land occupations and in turn justifies their demolition or removal. In mid 2002, the municipal government of Surabaya bulldozed much of the informal sector in a number of different locations that they had been in operation for a number of years. Yet, informal land occupation has been making up for the inefficiencies of urban land management (Fekade 2000).

The process of commercialization is derived from the process of regularization of land title that initially facilitates commercial transaction in land benefiting those with the most capital (Oberlander 1985). Regularization of land title leads to the collection of property taxes, allowing government investment in infrastructure which in turn leads to further commercialization. In the case study, land ownership is only recognized by the ownership of a legal land document: an IMB and HGB (as explained in chapter 5); those who do not have these documents are categorized as illegal occupants. This places government agencies at the center of the land market, with the clear potential for corrupt activity in the face of profit seeking developers (Oberlander 1985). The activity of LDCs' government prioritizes the role of profit-seeking developers, over the traditional custodians of the land (Oberlander 1985).

In the case study area, commercial activities that serve daily needs of most the industrial estate's labourers are categorized in the informal sector, which are not covered by legal regulation. Most operate in the night time and occupy public property adjacent to the location of day time formal commercial activity. Legal land ownership through the regularization of land titles only acknowledges commercial activity operating out of permanent premises. Land regulation is not possible for

movable and transient operations since the title system does not recognize their existence.

As a movable and transient activity, the informal sector falls outside a regulatory framework and thus does not pay tax. Another characteristic of the informal sector as identified in chapter-5 is that they are operated individually by the proprietors. These characteristics reduce the normal cost of production and selling. Therefore, goods and services offered by the informal sector are cheap, and affordable to low waged labourers. According to Sigit (2002, interview, 14 May), 70% of their wages is sent to their family in their home village with the remaining 30% being used for their daily needs. It is clear that even though labourer wages in SIER are at an average level in the context of Indonesian wages, they still require low cost goods and services on a daily basis.

The government is also responsible for urban planning activity. According to McAuslan (1985), India provides many formalized plans with little actual planning control taking place. Like India, Indonesia also has comprehensive and integrated urban plans, which are of little relevance to emerging planning problems. Surabaya has a comprehensive and detailed urban planning structure and development control regulations based on land ownership. There is no flexibility in this approach and those who do not have access to land ownership (via the regularization of land title) are not in position to respond to the requirements of the planning system. Formalization of urban land has been adopted from developed country planning systems and yet the urban resources, administrative system, political philosophies, and bureaucracies in LDCs, are significantly different to those in developed countries (McAuslan 1985).

In summary, urban land management in LDCs encourages the formalization of urban land ownership to justify the existence of inefficient zoning systems. This inefficiency is caused by the high dependency on both formal industrial activity and the informal sector. The industrial labour force must live close to their work to minimize transportation costs in a very low wage environment. The informal sector surrounding SIER serves the daily needs of the workers in terms of access to food and shelter. Even though the relationship between the formal and informal sectors is indirect, it is of significant importance for continued industrial growth.

6.4 SUMMARY

This chapter has addressed the central questions of this research: the cause of land use change, the nature of linkages between the formal and informal sector, and the appropriateness of planning regulation. In summary, the cause of land use change in the case study is the location of the industrial estate, and the operation of an unrestrained and unregulated land market.

The location of the SIER industrial estate is in the southern part of Surabaya on land identified for residential purposes in the Surabaya metropolitan plan. This has led to rapid population growth in the areas surrounding SIER. In terms of regional development, both Surabaya and Sidoarjo have a high degree of interdependency. In simple terms, Surabaya provides job opportunities, whereas Sidoarjo provides residential opportunities for the city's workers. However this locational advantage has also attracted further development opportunities characterized by the establishment of SIER. Since the inception of industrialization, the city has grown to the south, consolidating the power of Surabaya in relation to other cities in East Java province.

The location of the SIER industrial estate has generated land use change in the areas surrounding the estate. The industrial infrastructure has encouraged accessibility which has triggered further development of the area, including the change of land use from residential to commercial (both formal or informal). The greater the accessibility of a location, the greater the demand for property at that location. The accessibility of this area has created further demand for residential and commercial purposes.

Currently, governments in LDCs regard the informal sector as a part of the systematic urban transition from an agricultural to an industrial economy; the informal sector, through its links to production, can encourage this transition. The servicing role of the sector sustains the urban and residential growth that has been attracted to the industrial zone. In this environment the planning system is clearly at odds with the development intentions of the Indonesian government: there is a lack of balance between industrial planning at the national and local level, leaving local government to design policy and land use guidelines often in a policy vacuum. Industrial planning at the national level is focused on developing a modern and advanced industrial sector, but at the local level industrial structure is still dominated

by large numbers of smaller industrial units. Under the Reformasi regime, government devolution has handed complex planning regulation powers to a government level lacking expertise and assertiveness in the development process.

Indonesia, as with many other LDCs, operates an urban land management system that is adopted from developed countries. In the search for formalization it has encouraged the commercialization and consolidation of urban land. Regularization of land title has focused on the collection of property taxes, triggering the land use change required to justify the decentralization of powers to local government. For these reasons the government does not recognize the informal sector but in so doing ignores a dependable source of employment, income, and livelihood.

In brief, the planning system particularly as it affects urban land management, in Indonesia and other LDCs has been adopted from developed countries and largely ignores the existence of transient and informal commercial activity. This research proves that informal sector activity in surrounding SIER is a valuable and integral component of industrial growth.

7.0 CONCLUSIONS AND RECOMMENDATIONS

The previous chapter addressed three major issues raised in this research: the cause of the growth of the informal sector in the case study, the economic and social impact of this sector, and the regularization of urban land use through the planning system. These three points addressed the research questions: the pattern and process of land use change, the nature of linkages between the formal and informal sectors, and the appropriateness of zoning regulation in Indonesia.

A number of conclusions can now be drawn from this research and will be developed in this section. Several recommendations will also be presented to address the problems outlined in the previous section. Finally additional and further studies will be identified to extend our understanding of the informal sector in Indonesia and to reformulate planning approaches to land use control in Indonesia.

7.1 CONCLUSIONS

This research has examined land use change in an area surrounding the SIER industrial estate. The following conclusions are presented in diagrammatic form in Figure 7.1, which has been developed based on the findings of this research.

1. The influence of planning intervention in land use change focused on identifying the difference between the proposed master plan outcomes designated by the government, and the reality of land use occupation. The research has shown that there is a clear difference between the two, characterized by the growth of commercial premises on land designated for residential purposes.

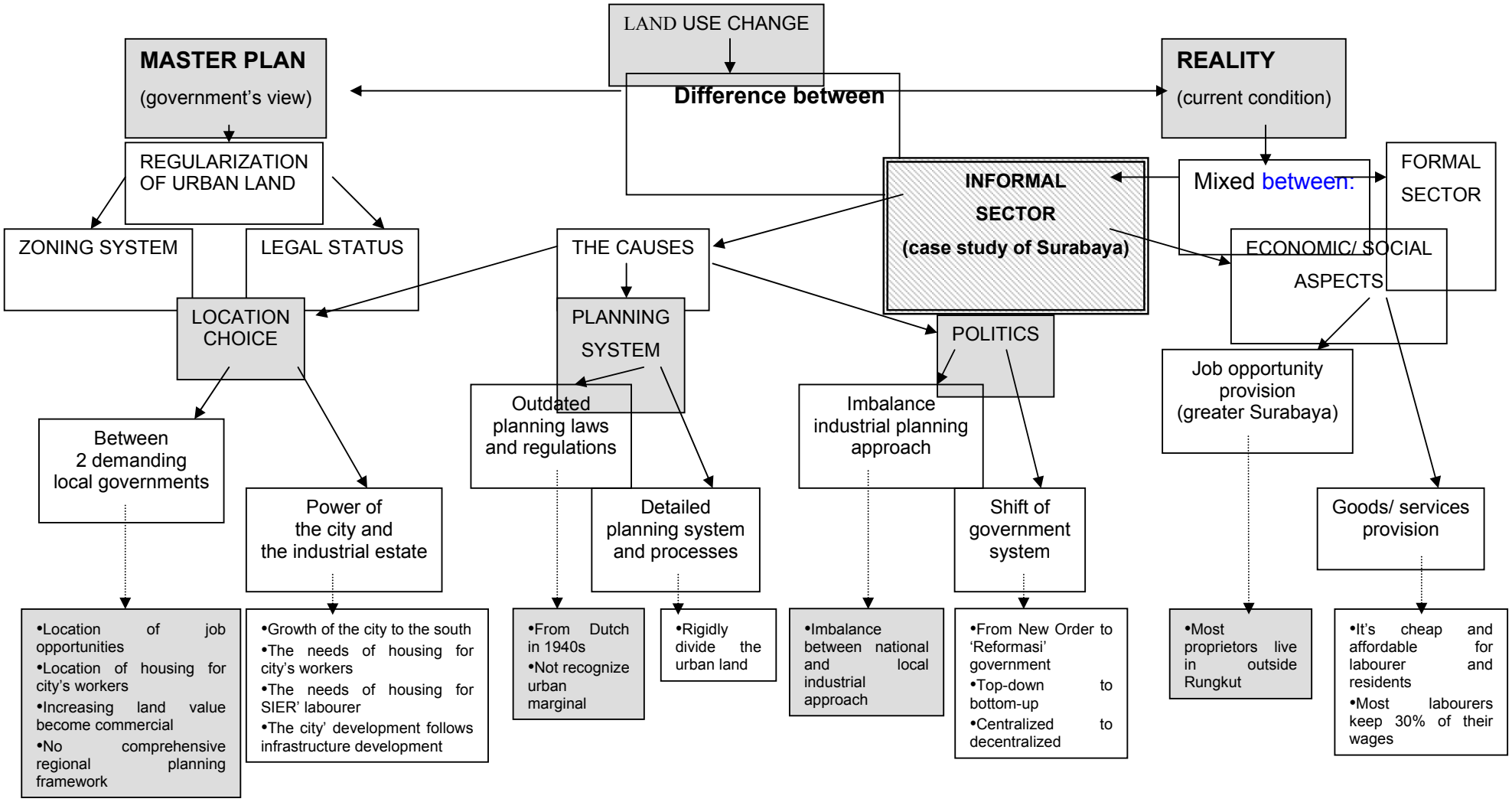


Figure 7.1: Diagrammatic concept of conclusions

2. The diagram identifies that urban land management in Indonesia, and other LDCs, have focused on regularizing a system of land ownership and occupation through a rigid and formal planning process. The zoning system permits some land uses, and excludes others, through a legalistic approach to land and building ownership. Only legal uses and development are recognized by the government, creating a large, uncontrolled component of city growth driven by market demand and resistant and hostile to intervention.

3. The current pattern of urban land occupation, as indicated in the diagram, in Indonesia and other LDCs, show a mix and coexistence of formal and informal urban land uses. This mixture is part of urban lifestyles in most LDCs. The informal sector fills the market void created by an inaccessible and unaffordable formal sector.

4. There are three causes for the lack of planning over the informal commercial sector:

- The SIER industrial estate is located between two competing local governments in the southern part of the city. Surabaya is a job provider, while Sidoarjo is the location of housing for middle income people that mostly work in the city. This Southern part of the city is designated as a location for new residential areas. In the competition to attract development the local governments have compromised land use controls, impacts and interactions (as shown in figure 7.2 below).

- The planning system in Indonesia is regulated by outdated planning laws and regulations, and no comprehensive and integrated urban plans are available to address emerging planning problems. The outdated laws and regulations are not responsive to current needs and fail to recognize the needs of the urban poor. Those who do not have access to the formal system are not in position to respond to the requirements of the planning system.

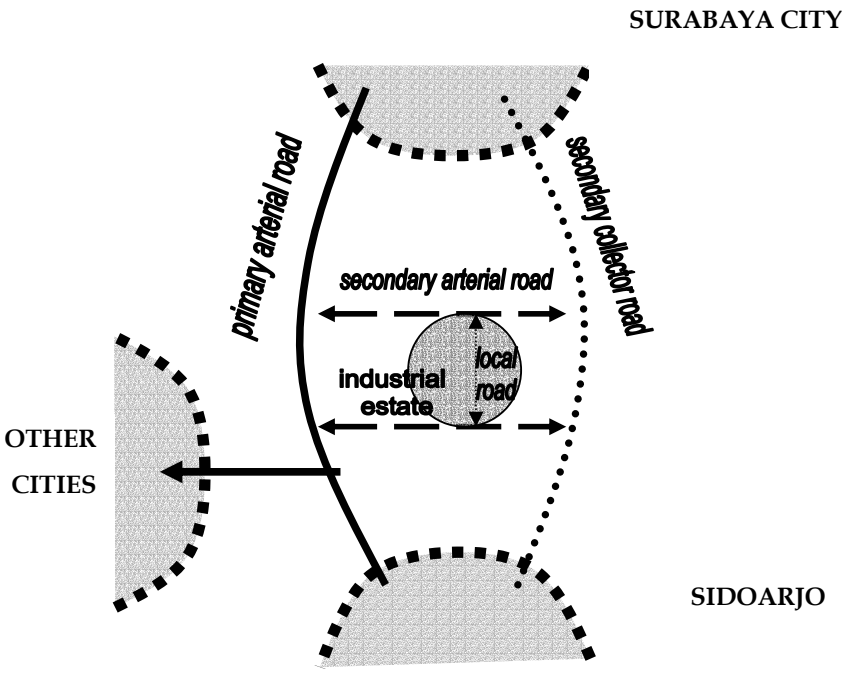


FIGURE 7.2: DIAGRAMMATIC LOCATION OF SIER INDUSTRIAL ESTATE

- The political expression of governance in Indonesia has created an imbalance between industrial planning at the national and local level. This imbalance has constrained local government in the preparation of policy and land use guidance for industrial development. Currently, the political situation in Indonesia is experiencing a shift from the New Order to the Reformasi regime. This has changed the authority of local government to a more independent arm of government and potentially can now challenge the centralizing power inherent to past industrial planning and industrial policy.

5. From the quantitative findings as indicated in the diagram (Figure 7.1), the informal commercial sector exhibits several important economic and social advantages for the community:

- The provision of job opportunities to the wider community of Surabaya. The questionnaire' result indicated that most of the informal sector proprietors live in sub-districts away from the SIER industrial estate.

- The provision of goods and services for SIER' labourers and residents. This conclusion is derived from the characteristics of the informal commercial sector that mostly delivers daily domestic needs. Goods and services from the informal sector are relatively cheap, because of the particular

characteristics of this sector including transience, owner operation, and low establishment and maintenance costs.

- Since this sector has a high dependency on access to the surrounding housing and industrial estates, operators prefer to undertake their business activity in close proximity to the industrial estate and labourer's accommodation. Their operation also complements the working hours of workers with higher numbers of informal business operating after hours and at weekends.

7.2 RECOMMENDATIONS

From the above conclusions, two major recommendations have been developed which relate to the locational choice of industrial estates, and the planning system in Indonesia. As seen in the diagram (Figure 7.1), there is an adequate relationship between the planning intentions of government and the realities of land use and development. The following recommendations are intended to create stronger links in order to maintain the advantages of the informal sector while integrating this sector into the formal planning process.

Locational choice

Many authors have addressed locational choice of industrial estates in developed and less developed countries. According to Hayter (1997), several locational factors are paramount: transportation facilities, materials, markets, labour, and infrastructure, and the character of environmental or amenity policies. The cost and impact of these factors should be minimized from the point of view of developers. Based on the case study of this research, in LDCs several additional factors should include: accessible and affordable workers accommodation and the provision of commercial services. These factors should service the wider needs of industrial activity, but also the needs of industrial labourers.

In most LDCs, where there is high competition for urban land, industrial estate development is a matter of regional and local concern. Comprehensive planning by

both provinces and districts needs to be implemented. In the process of urbanization as with economic growth, issues of equity must be addressed. The urbanization process delivers employees to the industrial sector and thus there is a responsibility to address their needs as a legitimate concern of the planning process.

Based on the analysis of land use change in areas surrounding SIER, it can be concluded that the growth of the informal sector cannot be avoided. It is a fundamental component of the daily lives of labourers and residents. Underpinning this are issues of labourer's wages, lifestyle, the locational constraints related to accommodation, and the inability to afford or access the formal sector. These interrelationships generate the need for proximity and access to the informal sector. The following recommendation concerns the issue of land use integration in areas surrounding industrial estate in LDCs (see figure 7.3 below).

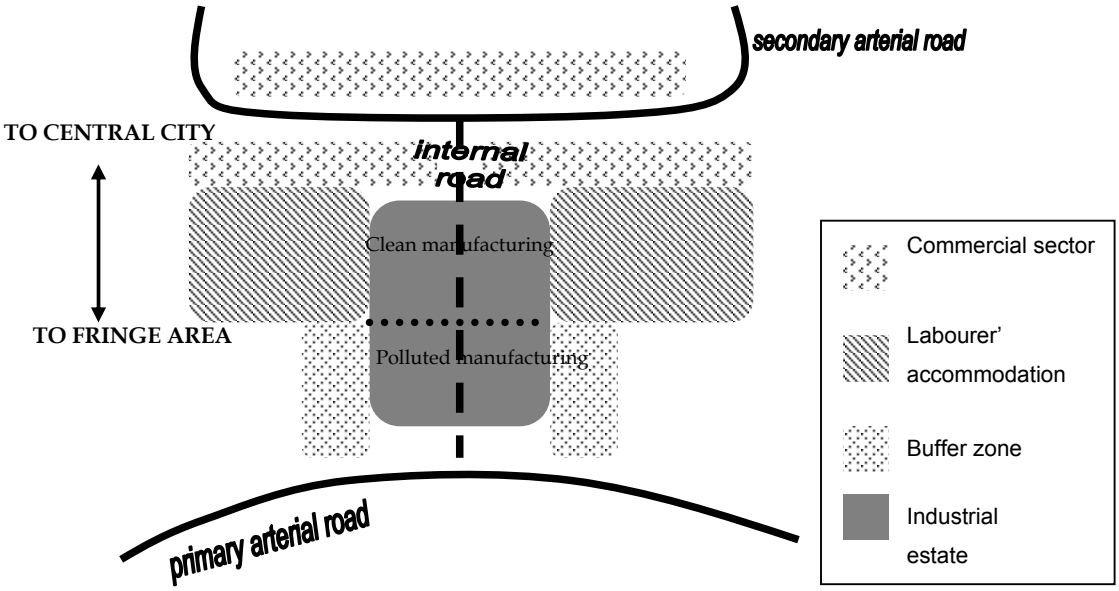


FIGURE 7.3: CONCEPTUAL MODEL OF INDUSTRIAL ESTATE ZONING IN LDCS

The logic for the above figure can be explained as follows:

- Industrial estates, given their wide potential range of impacts, need to be comprehensively planned on land located on the fringe areas of metropolitan regions. In LDCs, the estate needs to have access to a primary arterial road connecting the site to the hinterland. In addition, it will require secondary road access to the central city. The primary arterial road access will be suitable for heavy and polluting manufacturing activity requiring raw material

supplies. Clean and unpolluting industry may locate in other parts of the estate. Roads inside the estate are only for manufacturing activity; not open for public use.

- The polluting industry will require a buffer zone utilizing vacant land, to protect the environment from air and other pollution.
- Adjacent to non-polluting industry are potential sites for labourer accommodation and smaller business activity. The provision of this function should be an integral part of planning for the industrial estate, and under authority of the estate managers or local government to avoid the increase in land value caused by speculation. The accommodation should be provided for industrial estate workers only, at an affordable rent. Residential occupation in this area should allow small business activity to operate from the premises to encourage the development of an informal sector.
- Land adjacent to secondary arterial roads could be used for mixed-commercial activity and service provision, such as health clinics and office accommodation during the day time, and allowing entry of the informal sector during the night time. The streetscape of this site should accommodate wider pedestrian-ways, providing space for the informal sector and to avoid traffic congestion.

Planning system

The main issue in this recommendation is to address urban land invasion following rural-urban migration, which is currently being overlooked by planning laws and regulations. The city faces enormous pressure on land demand to accommodate the increased numbers of migrants seeking work. The growth of the informal sector is a part of this urban land invasion and is inextricably linked to the process of industrialization. An option open to the government is to integrate the informal sector into the city through its approach to urban land planning and management as outlined below:

1. Creating an effective planning system

   Government is a major player in city's development and is bound to respect its communities, and to build trust for a better life in these communities. In this transitional period from an agricultural to industrial economy and from a centralized to a more decentralized government structure, it needs the support

of emerging advocates for change: the Non-Government Organization community (NGO).

Creating an effective planning process requires: long-term and comprehensive planning, the integration of the master plan's objectives with the allocation of public and private resources, and integrating the planning process with other development activity. As Surabaya already has a long-term plan, it should be complemented with more comprehensive plans that consider social and environmental as well as the economic impacts of development. These three aspects need to be evaluated as a key approach to modernization of the planning system based around the principles of responsive democracy. However such an approach will be a challenge to a government structure with a tradition of promoting development opportunity. The involvement of NGOs will have a vital role to play in this regard and their input will be central in understanding and responding to the needs of local communities. In addition, every development of urban land based on the master plan should incorporate an appropriate allocation of financial, human and natural resources. This will ensure the community respects the power and authority of the planning system and provide a credible response to intervention to protect the public interest. Such characteristics should increase public participation and the promotion of planning activity. Planning in Indonesia therefore needs to prioritize public participation, particularly for those people that are directly impacted on by development. Such input will require the support of NGOs close to the community responsive to their needs, and with the ability to advocate a community view.

Figure 7.3 shows one approach to ensuring industrial development provides land and services for its labourers. Sites for commercial activity need to respond to the demand shifts that follow the departure of original residents of the area and the introduction of a non-agricultural workforce. While most large cities in LDCs have infrastructure and accessibility to major service centres such as the central city, the site for smaller scale commercial activity has escaped planning control and remains an ad hoc development activity at the mercy of the land market and an often corrupt local government organization. The design, size, and allocation of sites needs consultation and input from local government, estate management, the community and the proprietors of small commercial activity. The NGOs community is in a position to mediate such process.

2. Security of land status

The recommendations above will be constrained by the operation of laws and regulations in Indonesia relating to land ownership and development opportunity. Even the terminology 'informal sector' is derived from their lack of status in land occupation. From the informal sector proprietors' view, the legal authorization of their business is fundamental to their security. For example, it was noted that the informal sector proprietors inside SIER feel more secure than proprietors outside SIER because their business is recognized under regulation by the industrial estate. Security of tenure is a key element for the integration of the informal sector into the life of the local economy. In this case, tenure refers to the legal and administrative framework of land regulation and occupation. It is suggested that such security be provided by local government.

The current zoning system in Indonesia permits particular land uses while excluding others. It was demonstrated in the case study analysis that high value urban land is mostly occupied by the formal sector at daytime, and the informal sector at night time. The zoning system needs a more flexible approach, recognizing the smaller scale of transient commercial activity by, for example, regulating land use based on time of activity. Such zones could have specific design and lay out considerations relating to the occupation of public land. Responsibility for control would be at the village level (*kelurahan)* with regular payments returned to the village authority as a tax for the use of public land and buildings.

In summary, the zoning system in Indonesia needs to recognize the changing use of land over time and the potential role of public infrastructure such as streets and pavements. This would give the informal sector a formal frame of regulation and control under an urban planning system responding to the legitimate of the Indonesian peoples opposed to following the dictates of outdated Dutch colonial planning regulations.

This research set out to identify the characteristics of land use change in an area around a major industrial estate in Surabaya. It found that a major dimension of this change was the development of informal commercial activity that was operating outside of the official framework of land use regulation. However it was also noted that the operation of this sector is fundamental to the lives and lifestyles of the

industrial estate workers providing them with an affordable and accessible level of goods and service provision. This conflict between the planning system and an identifiable public interest undermines the authority of government intervention at a time when the nation is seeking to operationalism a system of governance that is more responsive to community needs. In this current spirit of reform the thesis has identified some directions of change that might be applied to industrial planning. This should achieve a more effective balance between development opportunity and the protection of community interest. Only by developing such reforms can Indonesia embrace both the opportunities and responsibilities of modernisation and democratisation.

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